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CONTENTS.

	Page.
Missouri Geological Survey	529
Colorado Gold Production	529
Electric Smelting of Iron Ores	529
United States Exports	529
New Publications	530
Books Received	531
Opening for an Assayer.—D. P. Hatch	531
Tungsten in Steel.—E. Gaujot	531
Microstructure of Steel.—H. M. Howe	531
"The Mineral Industry"	531
Recent Decisions Affecting the Mining Industry	531
Zinc Ore Deposits of New Mexico.—W. P. Blake	532
Electric Heat in the Chemical Industries	533
* The Vicuna Copper Smelting Furnace	533
The Cyanide Process.—W. H. Virgoe	533
* An Improved Mortar for Stamp Mills.—E. E. Olcott	535
The Coalfields of Mexico	535
Electricity in Smelting in Germany	536
* An Improved Coal Drill	536
Condition of Labor in the Mining Industries of Russia	537
* An Improved Ash Elevator	537
Patents Issued	538
Personal, Obituary, Societies, Technical Schools, Industrial	539
Notes: Russian Colliery Development, 532—Loss of Gold and Silver in Scorification Assay, 534—Alaska Boundary Survey, 534—New Coal Discoveries in Burma, 535—Chota-Nagpur Coalfield, 535—European Coal Supply, 535—Iron Ore Mines of Algeria, 537—Serve Ribbed Boiler Tubes, 538—An Ocean "Whaleback," 538—Peat Beads of the Kennet Valley, 538.	

* Illustrated.

MINING NEWS.		FOREIGN NEWS.					
Alaska	540	Brazil	544	Buffalo	546	London	550
Arizona	540	Br. Columbia	544	Chicago	546	Philadelphia	550
California	540	Chile	544	Pittsburg	546	Aspen	552
Colorado	540	Colombia	544	Philadelphia	547	Colo Springs	552
Florida	541	Germany	544	METALS	547	Duluth	552
Idaho	541	Mexico	544	CHEMICALS AND MINERALS	548	Helena	552
Kansas	541	New Brunswick	544	MINING STOCKS:		Pittsburg	552
Kentucky	541	Nova Scotia	544	New York	549	St. Louis	552
Michigan	541	Ontario	544	Boston	549	Shanghai	552
Minnesota	541	South Africa	544	San Francisco	549	Paris	552
Missouri	541	Spain	544	London	549	Coal Stocks	550
Montana	541	LATEST MINING NEWS	544	Paris	549	Ind. and Trust	550
Nevada	542	MARKETS:		Meetings	549	MINING CO'S	551
New Mexico	543	COAL:		Dividends	549	CURRENT PRICES:	
North Carolina	543	New York	545	Assessments	552	Chemicals	552
Ohio	543	Buffalo	545	STOCK QUOTATION:		Minerals	552
Oregon	543	Chicago	545	New York	550	Rarer Metals	552
Pennsylvania	543	Pittsburg	545	Boston	550	ADVT. INDEX	15
South Dakota	543	IRON:		San Francisco	550	ADVT. RATES	33
Tennessee	543	New York	545	Baltimore	550		
Utah	553	Boston	545	Denver	550		
Washington	543			Salt Lake City	550		

We are informed that the new organization of the Missouri Geological Survey has been fully completed, and that fieldwork will be resumed about the middle of June under charge of Dr. Charles R. Keyes, now State Geologist. The reports prepared by the Survey on Zinc and Lead, and on Paleontology, are nearly ready, and will go to press early in July. The work of the survey will be pushed to the full limit the appropriation permits.

The growth this year of gold production in Colorado is shown by the statements of the Denver Mint. In spite of the troubles at Cripple Creek the gold receipts for the month of May amounted to $431,934, as compared with $99,786 for May, 1893; that is, they were considerably over four times the amount reported last year. That the month was not an exceptional one is shown by the fact that in April the gold reported was $483,243, or considerably above the May receipts. It should be remembered, however, that some of the large smelters treating ores from other States now deposit in the Denver Assay Office, while formerly their bullion was marketed east. This gives Colorado credit for more than its share.

The German experiments in smelting iron ore by electricity, an account of which is given in another column, show an apparent technical success, but leave much to be desired from an economic point of view. The inventor, who would naturally make out the best case possible for his process, puts the cost of making pig iron at $9.65 per ton, with ore at $2.40 per ton. This, he thinks, may be reduced by $1 or $1.50 per ton with a large plant, where not less than 1,000 H. P. is available. Now a cost of $9.50 or even $8.50 for pig iron in the present state of the market is not going to leave a margin of profit which will induce any ironmaster to abandon his blast furnaces and put in a new and costly plant. Nothing is said of the quality of the iron produced, in the report, this important point being entirely ignored. Electric smelting has great possibilities for the future; but the cost of the process must be cut down materially before we can count it as a practical success.

The latest report of the Bureau of Statistics, which covers the ten months of the fiscal year, from July 1st to April 30th, shows this year a notable increase in the United States exports of manufactured goods, which have been greater even in value than ever before reported in the corresponding period. In round figures, these exports are valued at $184,000,000, or 20·3 per cent. of the total, and this amount compares with $158,023,000 (19 per cent. of the total) for the full fiscal year 1892–93; $158,511,000 (15·6 per cent. of the total) for the year 1891–92, and $168,927,000 (19·4 per cent. of the total) for 1890–91. The increase is distributed over a large variety of articles, among which agricultural implements, general machinery and cotton goods show the most marked gains. Taken by countries, the greatest increases have been to the South American republics, China, and Japan.

Much of this gain is probably due to the low prices of goods which have prevailed here; some of it, doubtless, to the efforts of manufacturers to sell abroad goods which the market at home would not take. It is to be hoped that the success attending these efforts, which is shown by the Treasury returns, will encourage our people to persevere in extending their export business; if possible, to making organized and systematic arrangements, such as the German manufacturers have already made in several cases. With our advantages we will certainly be able to command a large share of the world's trade, and if our manufacturers cultivate this trade, they will never again have so total a collapse of business as they have recently experienced and which was due to their restricted markets.

THE MORAL OF THE COAL STRIKE.

The widespread stoppage of coal mining has caused much loss and suffering in many branches of transportation and manufacture not connected with the origin of the dispute and not able to assist in putting an end to it. It has taken the avowed form of an attempt on the part of the organized miners to coerce the operators of bituminous coal mines, first to form a "trust," obliterating their individual character, and destroying free competition among themselves (an act explicitly forbidden by the "Anti-Trust law"), and secondly, in the character of such a trust, to establish uniform rates of wages for each geographical region. At the Cleveland conference, the miners refused to make any agreement, unless all the operators were represented—including many whose mines were still running, and whose workmen were contented, and had refused to strike. The operators, on the other hand, have refused (much to their credit, in my opinion) to form an illegal trust for the purpose of treating with a corresponding "labor" trust, and of sacrificing free capital, free labor and the public interest to the profit of such a large joint monopoly. Very likely they were influenced to some extent by the consideration that such a monopoly would be as impracticable as the attempt to organize it would be wicked. Certainly they cannot have failed to feel that the formation of such an alliance under terrorism, and for the purpose of escaping from immediate trouble, would be a permanent surrender to irresponsible and reckless tyranny.

The strike is now passing through that stage of actual and desperate violence which indicates its approaching failure. It has become a war on

the men who want to work, and an open defiance of the laws protecting peaceable industry. If the law is firmly and fairly enforced, the trouble will soon be over. The part of good citizens everywhere is to encourage the public officials in the maintenance of order, and to applaud those heroic men who are standing up in behalf of their employees as well as themselves, for liberty. In one instance, personally known to me, a colliery was visited by a mob of strikers, who, finding a military company, headed by the Superintendent, ready to receive them, retired. The leaders subsequently accepted a proposal that they should send a committee to address the miners, and that, after the Superintendent had replied, the question of a strike should be put to vote, both parties abiding by the result. Before an orderly assemblage of six hundred men, the debate took place. At its close, the men decided (with only five votes in the negative) to go on working, and signified their willingness to fight, if need be, for the right to do so. If such coolness and courage were more justly appreciated by the organs of public opinion, and more promptly supported by the organs of public justice and order, the extent and the evil effects of the strike would be limited at once.

But our theoretic and philanthropic philosophers cannot forego the opportunity of making larger deductions. To them the moment when the law is defied seems an excellent time to suggest that it had better be changed. Thus, the New York "Outlook," a religious weekly characterized by candor and good intentions, but infected with a mild form of socialism, moralizes on the strike as follows:

"The whole industry of the country depends upon its ability to make available for its use the coal which was stored up on this continent ages before the discovery of America by Columbus. Our economic methods have suffered these coal treasures to pass into the hands of a small number of men who have not created them, and whose chief, if not sole, social right of ownership lies in the fact that they have proved themselves possessed of the skill and power to make them available for the community. They have now proved themselves unable or unwilling to do this—unable because they cannot come to terms with their men, or unwilling because limiting the production raises the price. And the country patiently waits, while the factories stop their work and the railroads their trains, until the quarrel between the two contending parties is fought out to an issue. The time cannot be far distant when the people will interfere, and determine such labor controversies as these, even if it requires assuming a control of the coal-mining industries of the country."

It would be difficult to construct, by way of a summary, a more ludicrous and lamentable misstatement than this. The naive notion that the coal-resources of this country are in the hands of a small number of men, and that present troubles are due to the fact that "they" have proved themselves unwilling or unable to raise coal for the community, is an amiable delusion. The coal-resources of the country are so immense that good coal-lands are a drug in the market, and anybody can go into the business of mining coal who is foolish enough to desire to increase the already excessive capacity of production. The coal-operators of the country, as a body, have not proved themselves unwilling or unable to mine coal. It is the government which has proved itself temporarily unable to protect them in doing it. And it is a queer logic that argues, from this failure of the government in its primary function, the wisdom of giving the government more to do.

The "Outlook," like other benevolent theorists of its school, is fond of advocating governmental control over special lines of industry. It is always, I notice, somebody else's business that is to be made the field of such socialistic experiments; and I suppose the reason to be that everybody knows how difficult and how pernicious governmental interference would be in his own business, but it is easy to overlook the difficulties and mischiefs of which one has never heard or dreamed.

The area of the United States (excluding Alaska) is about 3,000,000 square miles, of which about 212,000 square miles are included in the coal regions outside of the vast areas of coal land in the Rocky Mountains and on the Pacific Coast. It is not improbable that these Western fields equal or surpass in extent those of all the rest of the country. At all events, it is safe to say that more than ten per cent. of the land in the United States carries coal. The government is selling coal lands at $10 or $20 per acre, according to their location.

The business of coal mining represents about $400,000,000 of capital, and pays more than $100,000,000 in annual wages. It is distributed through more than thirty States and Territories. The proposition that "the people" shall control this business means that either the Federal government or the several State governments shall take possession of the coal-lands, and proceed to operate the mines so as to prevent overproduction and ruinous competition, introduce scientific improvements, make wages high and transportation low, and "solve the industrial problem."

The scheme begins with the practical confiscation of 10 per cent. of the country. For government cannot be disturbed in its millennial task by individual competition; and therefore the private owners of coal-lands must be prohibited from producing coal. But the United States cannot thus interfere with property-rights in the several States, nor could any State effectively "control" the industry within its own borders, if it were exposed to the pestiferous competition of individuals in other States; and unfortunately the Federal Constitution guarantees to such evil-minded adventurers the right to sell their coal wherever they find purchasers.

Of course the "Outlook" will say it does not mean such an absolute control, but only a certain amount of benevolent meddling, enough to prevent industrial disturbances. The answer is very simple. Nothing will prevent disturbances under any system, except the punishment of crime.

Do our State socialists propose that, under "the control of the people," coal-miners shall be forbidden to strike at all? I suppose that, even in that case, they do not propose to make a man a coal-miner against his will; and hence their cherished reform consists in this: that, the government having fixed the terms of employment, whoever chooses to accept them must do so, knowing that he cannot withdraw at will. But how if he does withdraw, nevertheless—how if a thousand of them withdraw at once? Are they to be punished as criminals? And if you do not promptly punish as criminals men who rob and shoot and burn, how do you expect to enforce personal punishment against men who have, at most, only violated a civil contract?

Or is it proposed that coal-miners "under the control of the people" shall still have the liberty of striking, only that they must not forcibly prevent others from working, or indulge in malicious mischief? But that is the law as we have it to-day. Why not insist upon its enforcement, instead of weakening with irrelevant platitudes the public sentiment which should be sternly unanimous in its support? R. W. RAYMOND.

NEW PUBLICATIONS.

THE MINERAL INDUSTRY: ITS STATISTICS, TECHNOLOGY AND TRADE IN THE UNITED STATES AND OTHER COUNTRIES FROM THE EARLIEST TIMES TO THE END OF 1893. VOLUME II. Edited by Richard P. Rothwell, New York; the Scientific Publishing Company. Pages 934, and 112 advertising, with portraits and diagrams. Price $5.

For years past I have been unconnected with the business or editorial management of the "Engineering and Mining Journal," and my only relation to it has been that of a contributor to its columns over my own signature. I feel free, therefore, to express, as an outside observer, my opinions concerning the work accomplished by the "Journal" and the other publications which have been issued by the Scientific Publishing Company. I say an outside, but I could scarcely say an impartial, observer; for I cannot fail to be conscious of a glow of pride at the enlarged scope, the technical ability and the commercial success secured under Mr. Rothwell's management for an enterprise to the establishment of which so many years of my life were devoted.

The "Engineering and Mining Journal" has made great advances toward the realization of the ideal of which I dreamed, in the days when the limit of actual performance was fixed by the amount of annual deficit which my private resources could make up. In no department is this progress more striking (because in no department were deficiences more keenly felt in early days) than in that of comprehensive and trustworthy statistics. It is easy enough to make a show of statistics by uncritical compilation with scissors and paste, perpetuating the crude estimates and typographical errors of newspaper exchanges. But to be the trustworthy organ of great industries, patiently collecting from original sources, and intelligently arranging and expounding the multitudinous data essential to a complete record of progress, is a very different matter, involving systematic, acute and unremitting office-work, vast correspondence, and a much greater expense than is involved in any other department of a technical publication, measured according to the space occupied by the results. For a column of the most learned and brilliant contribution can be got (and well-paid, too) for a smaller sum than is often represented by an inch of compressed and careful statistics. This is no small consideration to the manager of a journal, who must fill so much space every week, and who realizes the effect upon the week's bills of the extra cost of preparing statistical matter and the printer's extra charge for setting it up.

On the other hand, there can be no expenditure of money wiser, in the long run (provided one has it to spend), than in the preparation of such current and periodical statistics as will render a technical journal permanently valuable to its readers, and make it a recognized authority throughout the world. And there could be no better indication of the far-sighted wisdom and the business prosperity of the management of the "Engineering and Mining Journal" than the steady enlargement and improvement of this department which it has exhibited since Mr. Rothwell took charge of it.

For the last two years his enterprise in this direction has overflowed the columns of the Journal, and has found expression in octavo volumes, the second of which now lies before me. Besides the market-reviews and an amazing amount of statistics of production and trade in many countries, these books contain technological treatises of original value by expert authorities, summarizing the history, the recent progress and the present practice of special arts and industries connected with mining and metallurgy. Both for the information contained in these articles, and for the guidance which they furnish to students desirous of pursuing these subjects in greater detail, they are most important contributions to our technical literature. Such treatises as those of Dr. Ledoux on "The Future of Copper-Production in Montana," of Dr. Peters on "Improvement in the Metallurgy of Copper," and of Mr. Ulke on "American Practice in Electrolytic Copper Refining" and on "Present Practice in Copper Concentration and Extraction," or of Professor Richards on "Progress in Ore-Dressing in 1893," of Mr. Rickard on "The Gold Resources of Colorado," of Mr. Saunders on "Advance in Methods of Stone Quarrying," and of Professor Kemp on "The Development of Views on the Origin of Ores," as well as that of Mr. Ingalls on "The Present Condition of the Zinc Industry in Europe," would do honor to the "Transactions" of any technical society; and Mr. Gibson's "History of Alkali

Manufacture in Great Britain" is an admirable summary, worthy of a separate volume. In mentioning specially these contributions, I feel that I am doing some injustice to the work of many other authors represented in this volume; but there is really no alternative except to repeat the Table of Contents, and give (what, I am sorry to find, the Table of Contents does not give, though it may be found elsewhere) the name of each contributor.

In view of the immense scope of these volumes, and their extraordinarily early appearance (considering the recent date to which their contents have been brought down), it would be a miracle if they were as infallibly accurate as the Presbyterian General Assembly declares the lost original of Holy Scripture to have been. I have seen criticisms of some statistical details in the first volume, which appeared to me to be well-founded; and no doubt the present volume will be similarly criticised at one point or another. But this was foreseen by Mr. Rothwell, who inserted in his preface last year an earnest invitation to his readers, which he repeats this year, to give him notice of any errors discovered, that they might be corrected in subsequent volumes. There is no danger that any imperfections thus pointed out will deprive Mr. Rothwell of the admiration and gratitude with which his great work has been everywhere received, or will render the two volumes which have appeared less than indispensable to all persons interested, commercially or technically, in any branch of the mineral industry.

R. W. RAYMOND.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Tempera e Cementazione. Per l'Ingegnere Stanislas Fadda. Milan, Italy; Ulrico Hoepli. Pages 108; illustrated.

A Handbook of Gold Milling. By Henry Louis. Macmillan & Co.; London and New York. Pages 504. Illustrated. Price, $2.25.

Steam: Its Generation and Use. Twenty-eighth Edition, 1894. New York and London; the Babcock & Wilcox Company. Pages 182; illustrated.

Etude Industrielle des Gites Métallifères. Par George Moreau. Paris, France; Baudry & Cie. Pages 440; illustrated. Price (in Paris), 20 francs.

Argentine Republic: Bulletin No. 67, Revised to Februarv, 1894: Bureau of American Republics, Washington, D. C. Pages 455. Illustrated. Price, 50 cents.

Canadian Independence, Annexation and British Imperial Federation. By James Douglas. New York; G. P. Putnam's Sons. Pages 114. Price. 75 cents.

The Steam Engine and Other Heat Engines. By J. A. Ewing, F. R. S. University Press, Cambridge. Macmillan & Co., New York. Pages 400. Illustrated. Price, $3.75.

Bricks for Street Pavement. By M. D. Burke, C. E. New Edition, containing an article on Country Roads. Robert Clarke & Co., Cincinnati. Pages 108. Price 50 cents.

The Coolgardie Goldfield in Western Australia. By Albert F. Calvert. London, England; Simpkin, Marshall, Hamilton, Kent & Co., Limited. Pages 114; with map. Price (in London), 1 shilling.

Report of C Le Neve Foster, H. M. Inspector of Mines under the Metalliferous Mines Regulation Acts: For the year 1893. London, England; printed for H. M. Stationery Office. Pamphlet, pages 20.

Catalogue of South Australian Minerals, with the Mines and Other Localities where Found. By H. Y. L. Brown, F. G. S., Government Geologist. Adelaide, South Australia; Government Printer. Pamphlet, pages 34.

Directory of the Iron and Steel Works of the United States: With a List of the Iron and Steel Works of Canada and Mexico. Twelfth edition; 1894. Philadelphia; the American Iron and Steel Association, James M. Swank, General Manager. Pages 292. Price $5.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

An Opening for an Assayer.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: I note your offer to aid those wanting situations. This is a new camp with a large showing of ore. If you have on your list a young man with a fair knowledge of mineralogy and chemistry who desires to give attention to assaying, I think this camp is a good opening. In the district is a stamp mill and an assay outfit that he could have the use of without charge, or until such time as he could make a plant.

D. P. HATCH,
Superintendent Elwood Mining Company.

ELWOOD MINES, P. O. Pagoso Springs, Colo.

Tungsten in Steel.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: Referring to a letter by your correspondent "F, C." in your "Engineering and Mining Journal" of May 26th, referring to the use of tungsten in steel, I beg to give you the following notes from my early experience in this matter, which may be of use to some of your readers:

"As far back as 1860 at the Forges d'Alsace, near Niederbronn, Alsace, France (at that time), we manufactured locomotive and car wheel tires out of what was then known as Mutterhouse puddled steel, in the manufacture of which steel we added tungsten. The quantity, however, I now forget. This addition made a metal very tough and not brittle. I was at that time in charge of the finishing shop, and we had great trouble to keep the tools sharp when working this material. In 1863 we commenced the manufacture of Bessemer steel for tires and rails, yet for several years afterward the railroad companies preferred the puddled Mutterhouse steel tires."

E. GAUJOT.

NEW YORK, June 7, 1894.

The Microstructure of Steel.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: On page 135 of your issue of May 12th, 1894, my good friend, Mr. A. Sauveur, refers to his paper to refute a supposed criticism of mine, thus showing that we are somewhat at cross purposes. In fact, I made no criticism, and his paper does not refute what I said.

Mr. Sauveur's paper indeed gives valuable evidence tending to prove that the ductility of steel is inversely as the size of its grain. But ductility is only one feature of general merit; tenacity, elastic limit, and perhaps other qualities as yet undefined, are extremely important, and in many cases probably far more important than ductility. It was of general merit, not of ductility alone, that I spoke.

Mr. Sauveur, so far as I see, does not assert that general merit or value, the product or sum of these individual properties, is inversely as the size of the grain, but I understand that he tacitly assumes that it is. This assumption I clearly indorsed as natural and proper without criticising, but if anything, rather justifying Mr. Sauveur. I used his paper as a peg on which to hang a plea for further steps towards converting this tacit assumption—in which most, and perhaps all of us, have hitherto joined him—into a demonstration. Indeed, I looked at his paper as one of the very things which helped to lift us above the plane of assumption, and set us on the road toward actual knowledge. Let us hope that, with the extraordinary facilities at his command, Mr. Sauveur will soon take further important steps in this direction.

HENRY M. HOWE.

BOSTON, June 5, 1894.

The Mineral Industry, Vol. II., 1893.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: We are in receipt of your great work for 1893. It is certainly an encyclopedia of the mineral resources and production of the world and surpasses anything heretofore published in this line. We would not have believed it possible to have collected such a mass of valuable information as that found in the "Mineral Industry," and offer you our hearty congratulations on your success. Thanking you for the copy, we are,

CASTNER & CURRAN,
Agents for the Pocahontas Coal Company.

PHILADELPHIA, Pa., June 5, 1894.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: We have just received Vol. II. of "The Mineral Industry," which occupies a deservedly conspicuous place in our little office library, and for which you will please accept our thanks.

You can perhaps form the best idea of our appreciation of this work and of the valuable information we obtain from its pages, when we explain this volume had not been in our office an hour before it was referred to for information scarcely touched upon in our Encyclopedia Britannica, and that this has occurred time and again during the past year in connection with your first volume.

There is no question but that our interest in this work will be maintained for years to come, and that we shall be amply repaid for the insertion of our little advertisement.

Chrome Steel Works,
BROOKLYN, E. D., N. Y., June 6, 1894. J. G. DUNSCOMB, Sec'y.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

SUPREME COURT OF THE UNITED STATES.

Title to Mineral Lands on Railroad Grants.

In Washington, May 26th, the Supreme Court gave its decision on the long-pending Borden mineral land case, which is a test case involving the title to a large tract of land claimed as a part of its grant by the Northern Pacific Railroad Company. The opinion of the Court was delivered by Justice Field, and was against the contention of the railroad company, that the exemption of lands containing minerals (gold and silver) made in the grant was limited to lands which were known to contain these minerals at the time of the act or location of the line of the road. No grant to railroads, the Court said, had ever been held to pass title to mineral land, and the practice of the Land Department has uniformly been to refuse to patent to a railroad company lands known to contain minerals prior to the date of patent. The judgment of the circuit court in favor of the railroad company was, therefore, reversed, and the case remanded with instructions to enter judgment in compliance with the judgment of the Supreme Court.

Justice Brewer dissented from the judgment. He contended that the title passed with the definite location of the line, otherwise it could never be known until the patent was issued whether the railroad company had title to its grant or not. Justices Gray and Shiras concurred in the dissent.

UNITED STATES CIRCUIT COURT S. D. CALIFORNIA.

Marking of Boundary Claims.

Marking the boundaries of the surface of the claim as required by statute is one of the first steps toward a location. It serves a double purpose; it operates to determine the right of the claimant as between himself and the general government, and to notify third persons of his rights. Another seeking the benefits of the law, going upon the ground, is distinctly notified of the appropriation and can ascertain its boundaries. He may thus make his own location with certainty, knowing that the boundaries of the other cannot be changed so as to encroach on grounds duly appropriated prior to the change. The prevention of fraud by swinging or floating is one of the purposes served. The record also serves a double purpose. As between the claimant and the government, it preserves a memorial of the lands appropriated after monuments, in their nature perishable, are swept away. It also supplements the surface marking in giving notice to third persons.—Gird v. California Oil Company, 60 Fed. Rep., 536.

Conditions Required in Location of Mining Claim.

The miners of each mining district may make regulations not in conflict with the laws of the United States, or with the laws of the State or Territory in which the district is situated, governing the location, manner of recording, amount of work necessary to hold possession of a mining

claim, subject to the following requirements: The location must be distinctly marked on the ground, so that its boundaries can be readily traced; all records of mining claims made shall contain the name or names of the locators, the date of the location and such a description of the claim or claims located by reference to some natural object or permanent monument as will identify the claim; on each claim located after the 10th of May, 1872, and until a patent has been issued, not less than $100 worth of labor shall be performed or improvements made during each year, but where such claims are held in common, such expenditure may be made upon any one claim; and upon a failure to comply with these conditions, the claim or mine upon which such a failure occurred shall be open to relocation in the same manner as if no location of the same had ever been made, provided that the original locators, their heirs, assigns or legal representatives, have not resumed work upon the claim after failure and before such location.—Gird v. California Oil Company, 60 Fed. Rep., 533.

ZINC-ORE DEPOSITS OF NEW MEXICO.*

By William P. Blake.

The zinc-ore region of southwestern New Mexico is now reached by the Silver City & Northern Railroad, a branch line from the Silver City branch of the Southern Transcontinental road. It is between Silver City and Lake Valley, and not far from Fort Bayard and Georgetown, or from the famous copper mines of Santa Rita. The railway terminates at Hanover, in the gulch of the same name. This is the shipping point for both the zinc ores and iron ores of that district.

It is a region of gray and white palæozoic limestones, probably lower carboniferous and older, rarely showing any traces of organic remains, and resting, at low angles of inclination, upon a foundation of light-colored crystalline rocks of archæan age. These ancient rocks are granitic, but have so much parallelism of structure in the arrangement of their component minerals as to suggest at once a mechanical origin, though by subsequent metamorphosing agencies they have become dense and solid, and, being hard and feldspathic, rather than micaceous, the rock cannot be described as gneiss. The structural planes are nearly vertical and trend northwesterly. Mineralogically, the rock is characterized by soda-feldspar, amphibole and an abundance of epidote of a light pistachio-green color, generally massive, rarely crystalline, and often associated with grains of magnetite. The abundance of this epidote, distributed over the hills and mingled with bowlders of iron ore, is very striking and unusual. It may also occur in the limestones, especially at the contacts with intrusive dikes, as garnets are found. The best exposures of the foundation rocks are along the ravines, notably at Hanover, at the end of the railway. The rocks of the hills are generally limestones or dolomites, and both these and the granitic rocks are traversed by dikes of intrusive porphyry.

The abundance of the massive iron ore first led to the exploration of the region and to the construction of the railway. Copper ores also claimed attention, and at last the oxidized zinc ores were mined, and, by reason of their exceptionally good quality and high grade, found a ready sale to the works in Wisconsin for the production of the white oxide of zinc. These ores comprised the carbonate (smithsonite), with some calamine, and were at first quarried at the surface, and then followed downward in irregular pits and cavelike excavations, in some instances to a depth of 60 ft. or more.

The ore occurs in irregularly concentric crusts or layers, or in cavernous masses made up of small layers or concretionary sheets of pure carbonate ore, nearly white and cream-colored, but in some places colored gray, or even black, by manganese oxide. Crystals are rare. The ore is sometimes in close association with aggregations of small quartz crystals, the presence of which reduces the percentage of zinc—and, consequently, the commercial value—so much as to prevent profitable shipment. The best carbonate ores, assayed by the carload, contain 35 to 38% metallic zinc. The excavations upon these carbonate ores show that they occupy cavernous spaces in the limestone strata, and irregular openings between the beds, gradually thinning out to mere seams. Considerable quantities are also found in the superficial soil, clays and ochers, derived, doubtless, in great part, from the corroded limestones and from the parent sources of the zinc ore. The sources of such zinc solutions are in many cases obscure, but in other cases very plain. As a general rule, the largest and richest deposits of smithsonite give no direct indication of their origin.

There is no reason to doubt that the carbonated ores existed originally as the sulphide of zinc (blende, black-jack or sphalerite of the mineralogist). This occurs in the same region in beds, in masses, and disseminated in other minerals, notably at the claims known as the Black Wolf, the Zinc Valley and the Thunderbolt, where excavations have revealed large deposits of black-jack, none of them directly associated with the carbonate ore. This blende is the dark reddish-brown variety, but is rich in zinc and free from arsenic and antimony. It does not appear to be highly argentiferous, and is an excellent ore for making spelter. It is granular-massive, not found in crystals, and exists in beds sometimes 20 ft. or more in thickness. It is usually intermingled with iron pyrites in grains and bodies of irregular shape dispersed through the mass. Any associated smithsonite is confined to the surface or near it, and is not intermingled with the blende.

The form of the deposits of zinc-blende seen at other places is generally lenticular; but the deposits being mostly, if not in all cases, along the planes of contact of intrusive dikes, or following the planes of faults, they have linear extension and sequence, so as to present the general appearance of lodes. This is especially well shown in the two contiguous claims known as the Black Wolf and the Zinc Valley, where a series of bunches of zinc-blende is found in one line for nearly the whole length of the two claims. The deposits may be classed as contact deposits, or segregations following the dikes or the planes of metamorphism. The lenticular form is best displayed in the smaller bunches of ore; and these may be taken as typical of the form of the larger deposits. The form of the zinc-blende deposits, however, has not been much shown by explorations. For this reason it is not yet possible to delineate with certainty the exact relation of the deposits to the wall-rocks. So also the relation of the massive garnet to the limestones has not been clearly shown. If we regard the massive garnet and the massive actinolite as portions of the ore deposit (as it seems we should do), the magnitude of the aggregations is much increased. At one end of the Zinc Valley claim the garnet rock crops out in high cliffs, and has formed a heavy talus of blocks, from a few inches to many feet in diameter. This garnet rock is composed almost wholly of garnets of a light color, generally wax-yellow, of the variety grossularite, and having a faint resemblance in color to the lighter resinous-looking varieties of zinc-blende, technically known as "resin-jack." It was for a time supposed to be a form of zinc-blende, a mistake which derived some support from the fact that tests of some of this garnet rock proved the presence of a notable quantity of zinc oxide. An examination shows that zinc-blende is closely associated with it, the blende being distributed in grains and layers, and sometimes in bunches of considerable size. It is similarly distributed in the actinolite. This actinolite is the light-green variety of amphibole, in radial, coarsely fibrous masses, the divergent prisms closely aggregated, and often 2 or 3 in. long. At other places it is a mass of closely interwoven fibers, making an exceedingly tough rock, but holding minute and sometimes almost microscopic grains of zinc-blende in its mass. This is true not only of the fibrous varieties, but of the coarsely radial masses, in which grains of sphalerite are distributed freely between the bladed crystals. These grains vary in size from a tenth of a millimeter or less to over a millimeter in diameter, being generally about the size of mustard seed.

This remarkable association of large beds of zinc-blende with pyrite, hematite, actinolite and grossularite in lenticular layers, and in disseminated particles in the substance of the actinolite and the garnet rock, forming great contact aggregations or segregated beds in limestone, appears to be unique. We have numerous examples of the association of garnet with magnetite and pyrite (notably with copper pyrites at the Nacosari mines in Sonora, Mexico, and in the Dragoon Mountains of Arizona), but not with massive zinc-blende. We cannot, however, fail to find a striking analogy between these zinc deposits of New Mexico and those of Sussex County, New Jersey, in that both are in connection with ancient white crystalline limestone; that in both localities the component minerals are arranged in layers parallel to the walls; and that similar silicates, garnets and amphibole abound in both places. The zinc and iron ores in New Jersey are in the condition of oxides and silicates; but in New Mexico they exist as sulphides, excepting the hematite. In New Jersey the oxidized ores abound, to the exclusion of the sulphides; and in New Mexico the sulphides abound to the exclusion of the oxides. Yet in New Jersey, further south, in the same limestones which carry the zincite and willemite, we find deposits of zinc-blende, which suggests a common origin of the zinc impregnations, though finally formed under different conditions. In the composition of the New Jersey ores manganese plays an important part, while in the New Mexican ores it is not so abundant, but exists in the amphibole, and to some extent in the iron ores, and is found in the zinc carbonate proceeding from decomposition of the blende.

From a commercial and metallurgical point of view the New Mexican ores present great difficulties in the way of immediate utilization; first, in the matter of transportation to any of the established centers of production of spelter or of oxide; and second, in the objectionable presence, in at least a part of the ore, of the heavy garnet from which the blende cannot be mechanically separated.

Also in the portions of the beds free from garnet the pyrite impairs the value of the zinc-blende for making either oxide or spelter. The pyrite can, however, be removed, but at present a supply of fuel cannot be obtained at figures sufficiently low to justify the undertaking. When coal can be obtained at a low price, either at Hanover or at the southern terminus of the railway, the higher grades of the mixed ore of blende and garnet, and of blende and actinolite, can be worked by either a preliminary conversion into a crude zinc oxide or by lixiviation, after proper roasting. The conversion of the smithsonite and the calamine into crude oxide is also desirable, to minimize the cost of transportation, and to work the lower grade ores which cannot now be profitably sent away. The higher grades of smithsonite, carrying 35% of zinc and over, pay a fair profit when they command over $20 per ton, but are sent out at a loss at lower figures, the necessary cost of raising the second quality of ore being counted. The freight alone, aside from the cost of carting the ore to the railroad at Hanover, is about $12 per ton to Waukegan or La Salle, Ill., or to Mineral Point, Wis. The secondary ores at or near the surface are cheaply mined, and there is but little waste. Expensive hoisting works are not required; simple windlasses suffice; there is no water to contend with, and the claimowners are generally content if they can realize wages by mining and shipping the ore.

The shipments of zinc ore by rail from Hanover up to January, 1894, amounted to 1,358 tons of 2,000 lbs. The greater portion has been sent to the oxide works at Mineral Point, Wis.; a few tons have been shipped to Waukegan, Ill. The financial depression of 1893 and the extremely low prices offered for zinc ore have greatly repressed mining, and many of the zinc claims have not been worked lately. The district also furnished 22,285 tons of iron ore from November 1st, 1891, to April 1st, 1893.

*Abstract of paper read at the Virginia Beach meeting of the American Institute of Mining Engineers.

Russian Colliery Development.—The great dearth of coal experienced last autumn by the districts dependent upon Russian coal has led to increased activity and enlarged productive capacity at the principal coal mines of the Donetz coal-field. The South Russian Coal Company has sunk a new shaft 770 ft. deep, which is calculated to supply from 200,000 to 250,000 tons of coal a year; underground roadways 5 versts long have also been driven in connection with this shaft. The proprietors of the Tlovaisky estate have also sunk a shaft 700 ft. deep, having the same capacity as the above. The Alexeffsky Mining Company has opened out a new mine with several shafts and roadways to the extent of 10 versts, and the Golanboffsky Association has replaced its cable tram line by a broad gauge line, with a view to doubling their output. The French Mining and Industrial Company is in course of sinking a new shaft to a depth of 910 ft. Owing to the increased demand for coke by the various metallurgical works of the district, 400 coke ovens of improved construction have been erected, with coal tar and ammonia collectors attached.

ELECTRIC HEAT IN THE CHEMICAL INDUSTRIES.

The adoption of electricity to furnish heat in techno-chemical operations carries this agent into a new field of usefulness. The "Chemiker Zeitung" states that in Germany it is used largely in the chemical industry to concentrate sulphuric acid. To produce 100 kilos of 66° acid it is necessary to concentrate 117 kilos of 60° acid. Assuming that this has a temperature of 18° C. at the commencement, and the concentrated acid 330° C. at the end, and assuming the specific heat of the acid at 0·33, the heat consumption in attaining the required temperature and evaporating will be as follows:

	Calories.
1. Heating 66° acid from 18° to 330° C.	10,296
2. " acid, evaporation of 17 kilos water	12,383
3. Heat evolution during union of 60° acid with one and a half H_2O, forming 66° acid	10,000
	32,679

Hence $32679 \times 4{\cdot}2 \times 10^3$ watts per second are required, or, $\frac{32679 \times 4{\cdot}2 \times 10^3}{736 \times 3600} = 44{\cdot}2$ H. P. per hour; or allowing for loss of heat by radiation, etc., from the retorts, about 50 H. P. per hour.

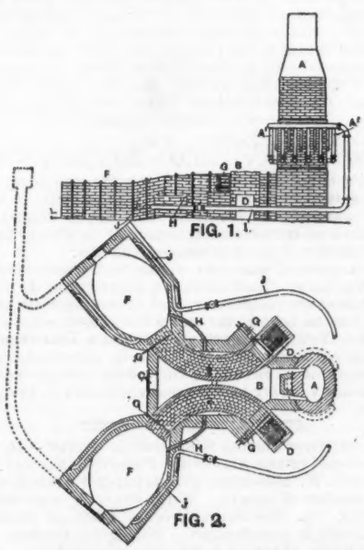
The resistance of platinum wire is used to localize the heat. To calculate the dimensions of the wire it is assumed that its mean temperature will be 150° C. higher than the acid; that is, 480° C.

If the difference of potential between the ends of the wire be 5 volts, a current of 364 amperes will develop, in a wire 0·5 cm. diameter and 77 cm. long, 2·4 electrical units; hence, in the course of 5 hours, 12 units are produced competent to concentrate 24 kilos of 66° acid (starting at 60°) in a vessel suitably jacketed to minimize loss by conduction, etc.

It does not appear to have been quite decided yet whether it is cheaper in practice to use a weaker current for a proportionately longer time, or vice versa. The calculations indicate, at least, the probability that electrically generated heat may be very economically applied, not only in the concentration of sulphuric acid, but of other liquids which demand concentration before being put upon the market.

THE VICUNA COPPER SMELTING FURNACE.

The accompanying illustration shows a furnace recently patented in Great Britain by Mr. A. O. Vicuna, of Vallinar, Chile. The invention includes a method of smelting copper ores, and the construction of a compound furnace used therefore, consisting of a combination



VICUNA'S COPPER SMELTING FURNACE.

of a cupola blast or reverberatory furnace, with several subsidiary hearths and auxiliary furnaces, by means of which sulphurous copper ore may be reduced to metallic copper in one heat and by a single and continuous operation. Fig. 1 is an outside elevation of the furnace, and Fig. 2 is a sectional plan. The charge of sulphurous copper ore and fuel is received in the cupola furnace A, provided with the usual blast or tuyere pipes A^1, and after it has been smelted therein the molten charge is run into the first auxiliary hearth B, where the molten matte or copper sulphide settles to the bottom; the slag floating on the surface is removed through the door C in the front of the hearth. This hearth B has on either side a diagonal grate or furnace D, which serves to increase the heat in B, or by means of flues E to throw the heat into the further hearths F F, when the communication below the flues between the grates D and the hearth B has been closed, and the flues E opened by dampers G, or other suitable means. In the hearth B may be added the dust ore or other material which it is not convenient to smelt in the cupola furnace. The hearths F F receive the molten matte from B by the channels H. The matte, thus freed from slag, is exposed alternately in F F to a desulphurizing and oxidising current of air and heat, either from the hearth B or from the grates D; or, when desired, by the admission of air by small doors or air holes in the walls of the secondary hearths F F and near the bridges. Hot air tuyere pipes I, connected with the main wind tube of the cupola furnace, may also be fitted. The pipes are sunk into the sides of the hearth at H, so that the air may be heated before it is discharged on to the bath of metal. The damper G may be closed for a time to allow the matte to get somewhat cool, and then again opened to re-heat the charge, and any remaining iron and impurities removed by the addition of a sillicious red ore, or the bath may be oxidized by the admission of air for desulphurization, until the copper, in a single heat, from its first smelting as an ore, may be reduced to fine copper bars. If desired "poling" may be carried out in the hearths F F, to bring the copper bath to any pitch as refined copper. An ordinary reverberatory furnace may be used in place of the cupola, but, in this case, the copper pyrites must be previously calcined.

THE CYANIDE PROCESS.

Specially Prepared for the Engineering and Mining Journal by Walter H. Virgoe.

Since the price of silver has fallen so that all low-grade mines have of necessity closed down in Colorado silver miners have been forced to direct their attentions to fresh fields in the vast gold resources of this State, or procure means whereby the low-grade silver ores may be cheaply reduced on the spot. The result has been that a vast impetus has been given to gold mining. Placer gravels have been diligently prospected and worked; new gold deposits have been discovered; new camps have sprung into being, and the existence of large bodies of low-grade refractory gold ores, neglected during the time when silver mining was in the height of its prosperity have been developed.

Probably at no period in the history of Western mining have so many new processes appeared in the field. The miner, too often fascinated by an El Dorado of wealth that seems within his grasp through the adoption of a process, without due care disburses some of his hard-earned wealth, and soon a dismantled mill adds one more gloomy object lesson to the large number dotting the hills and valleys of every mining section of Colorado. In the majority of cases carelessness on the part of the mine owner is alone responsible for this: Mills are erected in mining districts where the supply of ore of the quality required is insufficient, or—as is so aptly illustrated in Cripple Creek—where the ore is not suitable to the process adopted. Then, again, it so frequently happens that new processes are put in because they claim to be cheap and simple, requiring little outlay of capital, while old well-tried and improved processes are discarded because the first outlay for machinery is heavier.

The cyanide process has long ago ceased to be termed new, for it was first put before the miners of the West in 1890, as a solution to the difficulty of dealing with refractory and low-grade gold and silver ores. Since then many mills have been erected throughout the States.

The Gold and Silver Extraction, Mining and Milling Company, with headquarters in Denver, held the patent rights for the United States of America. This company has ceased to exist, and a new one under the title of the Gold and Silver Extraction Company of America, Limited, with shareholders abroad, has assumed its rights. It is worth noting that the Cassel Gold Extracting Company bases its patents on the use of a dilute solution of cyanide, not exceeding 8 parts of cyanogen to 1,000 parts of water, *i. e.*, a 2% solution of cyanide, claiming that by means of the use of a dilute solution the gold and silver in the ore are attacked preferably to the baser metals, a fact which the patentees claim was unknown to Simpson and former patentees.

Unfortunately so far it has made but little success in America except in the Mercur gold fields of Utah, and at the Livingstone mill at Boulder. Like the majority of processes it has its weak points, but it also possesses points of exceptional merit, though even its most ardent advocates will scarcely dare to claim for it everything that has been put forward on its behalf.

A want of information appears to exist among mining men as to the classes of ore suitable to the cyanide process. Several papers have been written on this subject, but which afford little satisfaction to the practical metallurgist, for they are all based on laboratory experiments. What practical men require to be convinced are authentic and impartial records of mill runs from the different mills existing throughout the country.

In the matter of gold-bearing ores, concentrates and tailings, only such material is adapted to the process as is, First: Low-grade, because the higher the grade of the material the stronger the solution of cyanide must be, and the greater the resulting loss of cyanide. An extraction of 80% on a $25 ore means a loss in the tailings of $5 per ton. Similar extraction on $100 ore means a loss per ton of $20, besides a heavier loss in cyanide owing to the necessity of using a more powerful solution. Second: The gold in the ore and concentrates must be in a fine state of division, as potassium cyanide, like chlorine, exerts a very slow solvent power on coarse particles of gold. Third: The material must be entirely free from deleterious compounds capable of absorbing the cyanide, such as copper bearing minerals and the easily decomposable products of the oxidization of pyrites, such as ferrous and ferric sulphates and basic sulphates, etc. Fourth: The material must, above all things, possess good leaching properties at the size mesh required for economical extraction.

Again, the manner in which the gold is mechanically carried in the material is of paramount importance. If it is contained in crystals of sphalerite or galena it cannot be extracted, and this is very frequently the case where the gold is carried in mispickel—arsenical pyrites. Some tellurium ores offer considerable difficulty, yet in certain cases, as at Cripple Creek, high percentages have been saved at a small cost of cyanide.

At the Mercur gold mine, Fairfield, Utah, the ore is a siliceous limestone, carrying magnetic oxide of iron, traces of cinnabar and gold. The latter occurs in a very fine state of division, coating the particles of magnetic oxide, and giving the ore a value of about $15.22 per ton. The cost of treatment, extracting 73% by bullion returns from the refinery works, is about $2.40 per ton, exclusive of royalty, superintendence and office expenses, thus itemized:

Potassium Cyanide, 1.27 lbs. per ton	$ .66
Zinc, 0.55 lb. per ton	.05
Labor, (7 shifts per 24 hours, 6 day and 1 night)	1.12
Supplies, repairs, fuel, freight	.57
	$2.40

This expense has been lowered by an increase being made in the capacit

of the plant. The ore is a typical one for the process. It contains no base metals capable of consuming the cyanide, and although its leaching qualities are not of the best, it is sufficiently porous to allow being treated at a coarse mesh.

The process is far better adapted to the treatment of auriferous than argentiferous material. In fact, it must be admitted that the cyanide process is, comparatively speaking, unfitted to the treatment of silver ores for several reasons: One, because argentiferous ores leach with more difficulty than gold ores in the raw state.

Again, because cyanogen has a greater affinity for gold than for silver, consequently silver ores require long treatment with strong solutions. Silver bearing minerals are much more complex in their nature than those carrying gold and require finer crushing, agitation and consume a larger amount of cyanide. Lastly, such silver ores as can be treated successfully by lixiviation methods can usually be more economically handled by some process in which cheaper chemicals are used, and on which no royalties or other charges have to be paid, such as the Van Patera process. However, without discussing the merits of the cyanide process as compared with others it may be stated that the chlorides and bromides of silver are easily reduced, and extractions of over 80% have been made on antimonial silver ores, the value of which does not exceed $30 to $40 per ton. Difficulty has always been encountered in treating silver sulphide ores. Those in which the value is contained in galena crystals cannot be handled.

Regarding the qualities in an ore essential for successful treatment, it can be at once seen that large percentages of extraction may be achieved by a heavy cost of cyanide, and the leaching qualities at the mesh requisite for economical extraction may be such as to render the process worse than useless owing to the length of time required to draw off the cyanide solution and succeeding wash-waters. In this latter difficulty lies the keynote of many of the failures in cyanide plants. Filter presses have been tried in South Africa, but without satisfactory results owing to their cost and the power required to work them. No mechanical means have as yet been devised for the satisfactory separation of pulp and solution in the case of poor leaching ores. Such an invention would revolutionize the metallurgical world as far as the wet reduction of ore is concerned.

The cyanide process is very far from being a simple one. Many of its difficulties are mechanical, but there are also many chemical problems in connection with it that must be thoroughly understood, in order that a mill may be run with intelligence and economy.

The value of the alkali cyanides in the MacArthur-Forrest process of extracting gold and silver from their ores lies in the fact that such cyanides possess the property of forming soluble double salts with these metals, viz.:

$$Ag_2 + 4KCy + O + H_2O = 2AgKCy_2 + 2KHO. \quad (1)$$
argentic potassic cyanide.

$$Au_2 + 4KCy + O + H_2O = 2AuKCy_2 + 2KHO. \quad (2)$$
aurous potassic cyanide.

It is possible that hydrogen is evolved during these reactions, as thus shown:

$$Ag + 2KCy + H_2O = 2AgKCy_2 + KHO + H. \quad (3)$$

Since potassium cyanide costs 50 cents per pound, delivered in cases of 100 lbs., the primary aim in treating all ores is to insure a maximum amount of extraction, with a minimum consumption of cyanide, consequently all sources of waste should be investigated and where possible averted.

That such sources of waste may be investigated it is necessary to examine closely the reactions due to atmospheric influence liable to occur in the storage tanks; reactions occurring in the leaching vats in treating different classes of ore, also reactions occurring in the zinc precipitation boxes. In brief, the chemistry of cyanide compounds must be understood. Considering, first, the following sources of waste liable to occur in the supply tanks:

1. Sources of waste due to the exposure of the solution to the effect of light and air.
2. Sources of waste due to impurities in the mill water used.

It is well known that cyanide of potassium, when exposed to the air deliqueses and evolves hydrocyanic acid.

$$KCY + H_2O = KHO + HCy.$$

and in all probability a so-called solution of cyanide of potassium is merely a mechanical admixture of hydrocyanic acid gas and potash in solution. Presuming this to be partly if not entirely true, it is reasonable to suppose that considerable loss occurs in the volatilization of this gas from the supply tanks. The presence of the gas in large quantities in the atmosphere surrounding the tanks in cyanide mills is always a very noticable feature.

The evolution of this gas may be brought in another manner, where the surface of the solution is exposed to the air and liable to absorb carbonic acid gas. Thus:

$$2KCy + CO_2 + H_2O = K_2CO_3 + 2HCy.$$

Again, potassium cyanide is a very easily oxidizable compound and when in solution in contact with the atmosphere, is liable to be converted to some extent into potassium cyanate, and this again into the bicarbonate.

$$KCNO + 2H_2O = KHCO_3 + NH_3$$

Instances are known where impurities in the mill water used, have decomposed the potassium cyanide to a very marked degree. It will be seen that water holding much carbonic acid gas in solution, or water containing soluble metallic sulphates will decompose a cyanide solution. Hence, water as pure as possible should always be used in mill solutions.

The determination of the sources of waste due to reactions in the leaching vats is a complex and difficult matter. Some ores consume more cyanide than others, and the consumption of this salt is always very greatly in excess of that required by the amount of gold in the material treated. The sources of waste in the leaching vats are similar to those in the storage tanks. A case occurred in Montana, where the leaching of the ore was conducted in covered tanks. The gas volatilized from the solution was so large in amount as to overpower two men engaged in removing the cover after the expiration of the time allowed for the leaching. But in addition, there are the losses due to consumption of cyanide by base metals in the ore treated. In regard to hematite and limonite ores the consumption of cyanide is usually low. This is also the case with sulphide of iron ores, provided the latter be free from all oxidization. The manganese gold ores of California consume a little more cyanide than the corresponding ferruginous ores. Galena and zinc blendes are unattacked. Great difficulty has always been experienced in treating copper ores containing more than 2% or 3% of copper, owing to the very heavy consumption of cyanide. A quarter of one per cent. solution is invariably the best to be adopted, if ores containing copper must be treated by this process.

Pyritiferous ores are liable to contain, especially when mined above the permanent water-level, soluble salts of iron and small amounts of free sulphuric acid. It is necessary, therefore in treating ores of this description to first leach them with water in order to dissolve the ferrous and ferric sulphates out, and afterward to decompose the insoluble basic sulphates with a solution of soda-lye or lime water. All mill work should be based upon carefully conducted laboratory experiments, determining the requisite mesh at which the ore must be treated; the strength of solution necessary and the length of time for such solution to remain in contact with the ore for the attaining of an economical extraction.

In the zinc precipitation boxes not only does an amount of zinc enter into solution proportionate to the amount of gold and silver and base metals precipitated, such as Cu, Sb, As, etc., thus:

$$2KAuCy_2 + Zn = ZnCy_2 \cdot 2KCy + Au_2,$$

but far more, and the excess is proportionate to the decomposition of the potassium cyanide. Looking at the reactions occurring in an ordinary zinc box, reactions in part purely chemical, in part electro-chemical, involving a waste of cyanide, it is seen that as soon as the gold is deposited on the zinc shavings, galvanic action is at once established between the electro-negative gold and the electro-positive zinc, hydrogen is vigorously evolved at the negative pole and the zinc converted into hydrate, which in turn is immediately attacked by the excess of potassium cyanide, forming zincic potassic cyanide and potash.

$$Zn(OH)_2 + 4KCy = ZnCy_2 2KCy + 2KHO.$$

As this reaction is incessantly occurring the solution becomes very strongly alkaline in the lower compartments of the zinc boxes. This galvanic action is a source of a large loss of cyanide, not only by causing the formation of the double salt of zinc and potassium cyanide, but undoubtedly by causing the oxidization of a certain quantity of potassium cyanide to cyanate.

The majority of mills make a mistake in not discarding screens made of fine iron wire in the compartments of the precipitation boxes, because there is a strong galvanic action established immediately between the zinc and the iron so soon as the cyanide solution flows through them, hindering the deposition of gold and silver and augmenting to a marked degree the loss of cyanide through solution of the zinc, besides largely increasing the zinc slimes in the product and making them more difficult to handle. Commercial zinc is only slightly soluble in potassium cyanide, but in contact with iron it is readily dissolved, especially in the lower compartments of the precipitation boxes, where the solution is most strongly alkaline. This reaction is thus expressed:

$$Zn + 2KHO = Zn(KO)_2 + H_2.$$
$$Zn(KO)_2 + 2KCy + 2H_2O = ZnCy_2 2KCy + 4KHO.$$

Again, the majority of boxes in use are far too long. There is no advantage to be gained in using boxes 20, 30 and 40 ft. in length.

Precipitation takes place mainly in the upper compartments, after which the solution is unnecessarily exposed to the action of the zinc. Short boxes and plenty of them is the right motto.

These are, in a general way, the merits and disadvantages connected with the cyanide process. That there is a great future before it in America, the writer has every confidence, and in the interests of mine owners and millmen, it is to be hoped that under the present organization success may be achieved. Yet the cyanide process has a very serious competitor in the treatment of many classes of ore in chlorination, a process involving the payment of no royalties, and which can be worked far more cheaply than formerly owing to the great reduction in the price of chemicals used.

Loss of Gold and Silver During Scorification Assay.—In an article appearing in the journal of the American Chemical Society, the authors, W. P. Mason and J. W. Bowman, give tabulated statements of the results of a large number of assays. With silver it was found that the average loss was, by the entire process 2·54%, of which 1·99% was in cupellation and 0·55% in scorification. With gold, the loss in the entire process averaged 0·87%, of which 0·296% was in cupellation and 0·574% in scorification.

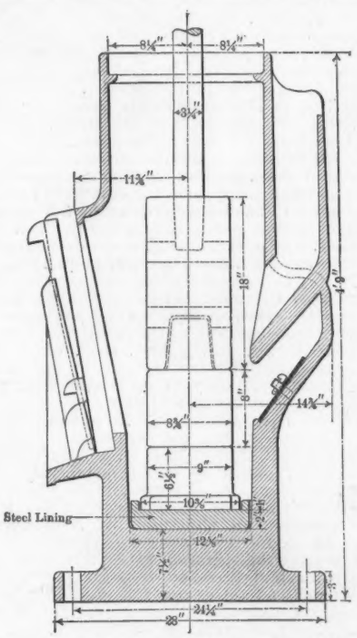
The Alaska Boundary Survey.—The steamer "Thistle," says the Juneau "Alaska News" of recent date, has departed for the Lynn Canal country, to station the several Dominion survey parties along the coast. The topography of the coast line from Berners Bay to Mount St. Elias, for a distance of 10 miles inland, has to be taken so as to furnish the necessary data to decide the boundary line dispute between Alaska and British Columbia. Boundary Commissioner W. F. King will place the different parties at their stations by means of the steamer "Thistle," and will return in June to Ottawa. Wm. Ogelvie will then assume general charge. The parties, consisting of five members, besides the chief, will work in the following sections: Wm. Ogelvie and party will survey the coast line from Berners Bay to Dyea on the east side of Lynn Canal, and A. C. Talbot and party will take the west side; A. J. McArthur and party will be stationed around Chilkat, and A. J. Brabazon's party will take notes in Bartlett and Glacier bays. When this section is finished, the survey parties will continue on the west coast to opposite Mount St. Elias. To the south, J. Gibbins and party are working along Frederick Sound, and A. St. Cyr is at the head of Portland Canal. Otto Klotz is finishing the work south of Wrangel. The report on the boundary line must be ready for the Boundary Commission by December 31st next.

The west coast from Cape Spencer northwest is rugged and precipitous, and will offer almost unsurmountable difficulties to this band of Dominion officials.

AN IMPROVED MORTAR FOR STAMP MILLS.

By E. E. Olcott.

The diagram presented herewith shows a recently designed gold mortar built by Messrs. Fraser & Chalmers, for the Phœnix mill in Arizona There is a recess for a copper plate at the back; but it is intended to use the battery without a copper plate in the front. In order to equalize the height of the discharge, iron filling-up pieces are intended to be used under the screen, so that when new dies are put in, three of these pieces will be put under the screen, and as the die wears down they can be removed one by one. A more common means is to make the top bar of the screen frame a little narrower than the bottom, so that by reversing the top and bottom of the screen different heights of discharge are obtained. The introduction of the steel lining plate under the dies seems an experiment, though steel liners round the inside of the mortars above the



IMPROVED MORTAR FOR GOLD STAMP-MILL.

dies are good. The outward inclination of the screen (8° to 10°) is to be recommended. Double-discharge mortars have never seemed to give satisfaction for gold milling; theoretically they should effect a saving, but our best millmen do not believe in them.

I am inclined to consider as purely imaginary the grinding action on the ore, produced by the turning of the shoe on the die. Practically speaking, the stamp turns only when being lifted, and drops almost straight; the principle object of this rotation is to cause the cam and tappet, and the shoe and die, to wear more evenly. In the West, axle-grease is usually employed on the face of the cams, but the practice in South America is to use molasses and water, so as to avoid any grease falling on the copper plates.

The cost of breaking rock in the crushers is far less than under the stamps, hence every millman should see that as much work as possible is done by the rock-crushers. When the ore coming from the mine is in very large pieces it would pay well to have a large-sized rock-breaker feeding into two smaller ones, so that the work of the stamps may be reduced to a minimum.

The European Coal Supply.—In a work on the coal supplies of the European states and their exhaustion, "Die Kohlenvorrathe der Europaischen Staaten und deren Erschopfung," Herr R. Naffe estimates as follows the mineral wealth still remaining in the various coalfields of the German Empire, taking into account only seams of sufficient thickness to be worked economically, and not lower than 1,200 meters (3,935 ft.) and also deducting loss in getting and picking, in metric tons: Ruhr coalfield, 50,000,000,000; Saar coalfield, 10,400,000,000; Aachen, 1,800,000,000: Upper Silesia, 45,000,000,000; Lower Silesia, 1,000,000,000: Saxony, 400,000,000; various small coalfields, 400,000,000; total coal in Germany, 109,000,000,000.

To this 109 milliard tons he adds another three milliards for the lignite, taking, however, only three-fifths of its quantity—the relative calorific value—thus bringing up the total for Germany to 112 milliard tons. Admitting that in England seams 13 in. may be worked, and at depths of 400 ft., he puts the quantity of coal still available at 198 milliard metrical tons, adding the other European states as follows, making a total of 360 milliard tons: Great Britain and Ireland, 198,000,000,000; Germany (coal and lignite), 112,000,000,000; France, 18,000,000,000: Austria, 17,000,000,000; Belgium, 15,000,000,000; total for Europe, 360,000,000,000.

Herr Naffe considers that the coal will first be exhausted in Austria, then in France and Belgium, and lastly in Germany, in from 500 to 1,000 years; but this opinion is based upon the present output and also upon the present depth of working, whereas it is probable that both will alter considerably.

* Extract from paper read before the American Institute of Mining Engineers.

THE COALFIELDS OF MEXICO.

Prior to 1880 it was generally assumed by both geologists and engineers that there were no commercially important coal-bearing formations in Mexico. As early as 1870 a small amount of coal had been mined in the State of Sonora, near the town of Los Bronces, for the use of local smelters, and in some other portions of the country a little coal had been taken out for local use, but none of these deposits had been carefully examined, and in view of the almost entire absence of transportation facilities they were not deemed of much importance. By 1880 railroad development had commenced to play an important part in opening hitherto inaccessible regions, and when, about the time a number of samples of anthracite were sent to the Government Bureau of Mines for analysis, so much attention was attracted that a commission was appointed to visit and examine the locality from which it came, and also other points where coal was reported as existing. After devoting considerable time and study to the matter the commission rendered a very comprehensive report, in which it was shown that anthracite, bituminous and brown coals existed in a number of the Mexican States in such quantity as to be of the utmost economic importance to the country so soon as railroads should be built to them, providing a means of transportation. Until nearly 1890 very little work of importance was done, though many mines had been opened, some operated, and a better knowledge of the extent and condition of the coal-fields arrived at.

The most fully developed coal-field in the country is that in the State of Coahuila. This is evidently a part of the coal-field lying on the north side of the Rio Grande, around Eagle Pass, Texas, and covers a considerable area in the Mexican State named. Geologically all of the coal measures occur in the cretaceous formation, and are divided into two beds, the upper, or Laramie, and the lower, or Fox Hill, both corresponding with the coal bearing formation of the same name in Colorado, Utah and Wyoming. In what is termed the Rio Grande region, lying near to Piedras Negras, the Fox Hill group outcrops and is mined to a small extent, the product being a variety of cannel coal, useful for certain purposes. From Sabinas, extending south and southeast, the Laramie group is developed, and in it the mines at Sabinas, San Felipe, Hondo and Alamo are operating, supplying coal for various railroads, principally the Mexican International; making coke for the use of smelters in the various Mexican States, and also shipping a considerable portion of the output through the port of Piedras Negras into the United States. The coal measures throughout this region are greatly disturbed by faults and foldings, another difficulty encountered being the irregularity in the width of the seams, and occasional intervention of barren areas.

In the State of Sonora, lying along the gulf of California, and extending north to the line of Arizona, coal was found and used by local silver smelters so early as 1870. At the towns of Los Bronces and La Barranca some small openings were also made. In 1890 an English company sent an engineeer to examine the reported discovery of coal near San Marcial, 60 miles from Guaymas. It was found that about 17 ft. beneath the surface a seam of anthracite occurred, variously reported as 3 to 9 ft. in thickness. The company secured a concession of 4,000,000 acres of land, and planned to develop the coal and construct a railroad to the port of Guaymas, in the Gulf of California, from whence coal was to be exported and also supplied to Pacific steamers. Failing to carry out the provisions specified, the concessions were declared forfeited, and shortly afterward were granted to a Mexican company, organized to carry on the proposed work. Explorations with the diamond drill and by prospectors show that this coalfield is quite extensive. It is reported to have been traced sixty miles east from San Marcial, nearly 120 miles northeast, and in the north to the Arizona line. The developments started by the Mexican company are about 40 miles from Ortiz, lying between Hermosillo and Guaymas. The drill is said to have shown three distinct seams of coal, 2, 4 and 7½ ft. respectively. It is all anthracite or semi-anthracite, containing from 8 to 15% ash and sulphur, according to reported analyses.

In the State of Puebla some 59 coal mines had been opened up to 1890. In the district of Acatlan, in the southern part of the State, 20 mines were opened, 18 of them belonging to one company. Owing to poor facilities for transportation, difficulties encountered in mining and the rather poor quality of the coal, little work of importance has been done. Most of the mines were opened in hopes of securing from the State government the bounty of $1,000 per year for 10 years and freedom from taxation for 25 years, which had been offered to the first company which should supply Puebla with a quantity of coal at a price no higher than that of wood. Very attractive inducements were also offered to railroads which would build in and develop these coal properties and the contiguous country.

In the State of Jalisco coal has been found at a number of places—on the border of Lake Chapala, in the Rancho del Veralito, Chiquilista, and in the Ameca and San Gabriel valleys. Small deposits have also been discovered in the States of Vera Cruz, Hidalgo, Tamaulipas, Tlaxcala and Nueva Leon, some of that occurring in the latter States being used on the locomotives of the Mexican National Railroad. A deposit of a variety of bituminous coal known as Grahamite is reported as having been found a few miles up the river from Tampico.

Brown coal, or lignite, is found in a number of localities in Mexico, but is little used, practically not at all in a commercial way. As a rule it presents the same peculiarities both as to formation and character as the liguities of Texas, Colorado and other localities in the United States.

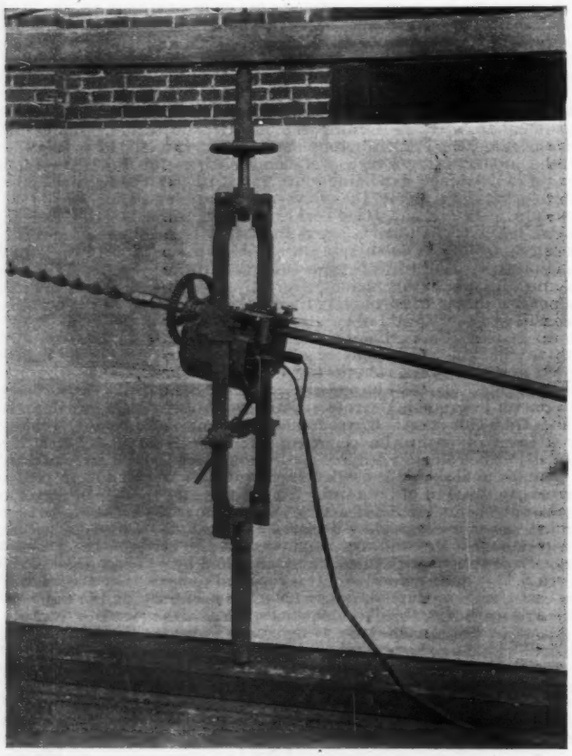
Fresh Discoveries of Coal in Burma.—While surveying for the Chittagong-Akyab-Minbla Railway Survey large quantities of coal have been discovered in the vicinity of the operations. Sixteen samples from as many different seams in different localities were sent to the manager for trial.

Chota Nagpur Goldfields.—Dr. King, Director-General of the Geological Survey of India, who has recently made a tour in Chota Nagpur, is of opinion that there is a future for the goldfield in that district, and it is probable that government will order a thorough survey of these fields with the object of ascertaining the extent and distribution of their mineral wealth.

NEW ELECTRIC COAL DRILL.

During the past few years a great deal of attention has been given to perfecting electric auger drills, particularly for mine service. Among the difficulties met with in designing a machine that would be strong, as well as durable enough for the great variety of service that it would be called upon to perform, is the question of weight. It has been proved by long experience and careful investigation that a power drill, to meet the demands made upon it, must have not less than 2½ H. P. available at the auger. This means, in an electrical drill, that the machine must be capable of taking from 3 to 4 electrical H. P., varying with the efficiency of the motor. The Jeffrey Manufacturing Company, Cleveland, O., has recently brought out an electric auger drill which, as will be seen from the illustration, is very compact and designed with a view to stand the hard usage that it will receive in mine service.

The drill, complete, for bituminous coal mines, including post for 6-ft. mine, feed-bar, adjusting clamps and gearing, weighs 160 lbs., and is capable of developing from 4 to 5 H. P. at the auger. This power is very rarely required, and for drilling in the hardest bituminous coal not more than 2 to 2½ H. P. is needed. But as it must be capable of doing a great variety of work, this machine was designed to take at times 7 to 8 H. P. without excessive strain or injury. The machine has been thoroughly tested under this load and is said to have shown no signs of sparking or excessive heating.



THE JEFFREY ELECTRIC COAL DRILL.

The weight and the power of this machine are, of course, the two most important features. The largest sized drill, which looks practically the same as the one illustrated, has a normal rating of 4 mechanical H. P., but has been tested in rock and sandstone up to 9 H P. This machine was designed with an especial view to the requirements of anthracite mining, for trimming gangways, taking down roof, or general rock work. It will drill a 2 in. hole 6 ft. deep in the hard "boney" found in the anthracite mines, in from 2 to 2½ minutes, taking an average current of 17 amperes at 220 volts. Drilling in anthracite coal, the machine drills a 2 in. hole 6 ft. deep in 50 seconds.

The motor is well protected, being inclosed in a steel casing on the sides and by a steel plate on the end facing the coal or material to be drilled. This plate is carefully fitted on the end of the motor so that it is practically impossible for pieces of dirt to get inside of the frame and cause injury to the armature or field coils. The rear end of the motor is covered by the switch-board. The armature is water-proof, drum wound with slotted laminated disks. The commutator has a large number of segments which reduces the tendency to spark, and has also a large surface for brush contact. The motor has two spools, one on the top and one at the bottom, the top spool having about twice as many turns as the lower. This arrangement allows a much lighter machine to be constructed and at the same time gives a well balanced field.

The efficiency tests on these machines showed that the smaller size had 77% commercial efficiency and the larger size 80%. For so small a motor this is high. The remark is sometimes made that "efficiency does not matter in a coal mine," because coal is so cheap, but if the real meaning of low efficiency in an electric motor was better understood it would be found that quite as high an efficiency is required in mining apparatus as in street railway motors. Low efficiency means heating the armature and field coils; high efficiency means cool armatures and field coils and increased work at the point where the power is required. No starting rheostat is used on these machines, as the motors are so designed and wound that they will start under full load without any intervening resistance.

ELECTRICAL SMELTING IN GERMANY.

Under date of April 26th Mr. Frank H. Mason, Consul General at Frankfort, writes to the Department of State as follows, concerning the Taussig process of smelting by electricity, and under the influence of rarified air, which was noticed in the "Engineering and Mining Journal," Feburary 10th, 1894:

The apparatus includes a long, air-tight smelting channel or chamber, the hearth of which inclines to a central orifice, through which the fused metal passes into the molds. This chamber is filled with the metal to be smelted, and heat is generated by passing an adequate current of electricity through the mass without the use of any kind of fuel, or the employment of carbon electrodes. The furnace is lined with glazed firebricks, which insulate quite perfectly the contents of the chamber, so that the heat is developed evenly throughout the mass, and very little, if any, loss of current is experienced. From the testimony of experts who have examined this process in operation, it appears that a degree of heat sufficient to smelt pig iron in 15 minutes can be generated and maintained without unduly heating the other parts of the circuit, and this is equally true, not only of the smelting of easily fused metals like lead and zinc, but also of Siemens-Martin steel of Swedish origin.

The entire absence of coke, coal, or carbon electrodes secures to the fused metal nearly absolute purity, and the continued exhaustion of air and the gases generated by smelting increases the fluidity of the molten material, prevents oxidation and blistering and producing castings of a dense, smooth quality, which have shown, under elaborate tests made by unimpeachable authority, the highest mechanical qualities of which cast iron is capable.

For smelting raw ores, the most obvious advantage claimed for this process is that it can be worked wholly by water power and without fuel in mountainous and remote districts which produce ores and have abundant water, but no coal. For fusing iron, steel, or other metals for casting, the advantages claimed are rapidity of operation, improved quality in the castings, susceptibility of continuous working and—even where steam power is used to generate the current—an economy in fuel which is estimated at from 30 to 50%. From what has been already stated, it would appear that the practical limit of capacity will be a furnace or fusion channel from 36 to 40 ft. in length, and capable of containing at one charge about 1½ tons of metal. By working such a furnace with a current of 30,000 amperes and 50 volts—which would represent a force of about 2,000 H. P., or somewhat less than the energy employed in the reduction of aluminum at Neuhausen—the entire charge of 3,000 lbs. can be fused and run into castings within a quarter of an hour. By repeating the operation as rapidly as the charge can be replaced and smelted, a single furnace of this capacity can be made to turn out in a working day a large quantity of castings, and when motive power for generating the current is supplied by water, or even by steam made with a cheap quality of coal, the economy of the process over present methods would seem to be obvious.

Comparisons have been made with the well-known results of making iron and steel castings by smelting in a Siemens-Martin regenerative furnace, where from 1,000 to 1,400 lbs. of coal are burned to smelt 2,000 lbs. of iron. Assuming that water power for the Taussig process is not available, and that the dynamo and air-pumps must be worked by steam, it is claimed that the same result, the smelting of 2,000 lbs. of iron or steel, can be effected by the consumption of from 720 to 800 lbs. of steam coal, an economy of 50% in the use of fuel. This economy is still greater, if, instead of the foregoing comparison with smelting in a Siemens regenerator, we consider the treatment of steel in crucibles, where 1,200 lbs. of the best coal is consumed for each 1,000 lbs. of steel, and this proportion is increased to 1 500 or even 1,600 lbs. when the coal used is of inferior quality and yields a large percentage of ash.

While the preliminary experiments—which have been conducted with a current of 18 to 20 H. P.—have been successful, with resulting products of high and uniform quality, the practical application of this new process on an industrial scale has yet to be made. Works have been built at Copenhagen, where it will soon be put into practical operation, and a syndicate has been organized for a similar purpose in southern France. The first use of the system will be in the production of small castings of iron and steel, in which high quality, smoothness of surface, and freedom from flaws and blow-holes are especially important. In the earlier experiments, four-bladed propellers of a size suitable for electrical or steam launches were cast with excellent results.

In the production of pig iron and other metals direct from the ores, greater difficulties will no doubt be encountered, for the reasons, among others, that the charge to be smelted will be necessarily small, and the furnace must be so constructed as to provide for the elimination of the slag. The experiments in this direction have been made thus far on only a small scale, but the produced iron, owing to the absence of coal or coke and the prompt withdrawal of the air and gases generated by smelting, is very pure; and since it contains a much lower percentage of carbon (2·99%), than ordinary iron, it would seem to be well adapted to the manufacture of steel. It is estimated that with a plant equipped with a motive force of 500 to 600 H. P., and supplied with good, ordinary 48% ore, the cost of producing a ton of pig iron—allowing $2.40 per ton as the price of the ore—would not exceed $9.65, and this, in the opinion of the inventor, could be easily reduced to $8 per ton if a motive power of 1,000 H. P. were employed. In a report on this process which has been published in "L'Electricite," of Paris, it is claimed that "the cost of a new installation of this kind on a large scale would very slightly exceed that of an ordinary installation of the same importance. In reality, it would cost less, as the new system would be free from the expense of furnace repairs and replacement of crucibles, which is so large an item under the old one."

Putting aside all mere conjecture and theorizing, and adhering strictly to what has been thus far accomplished, the record of actual results would seem to be:

1. It has been shown that by this process a degree of heat sufficient to

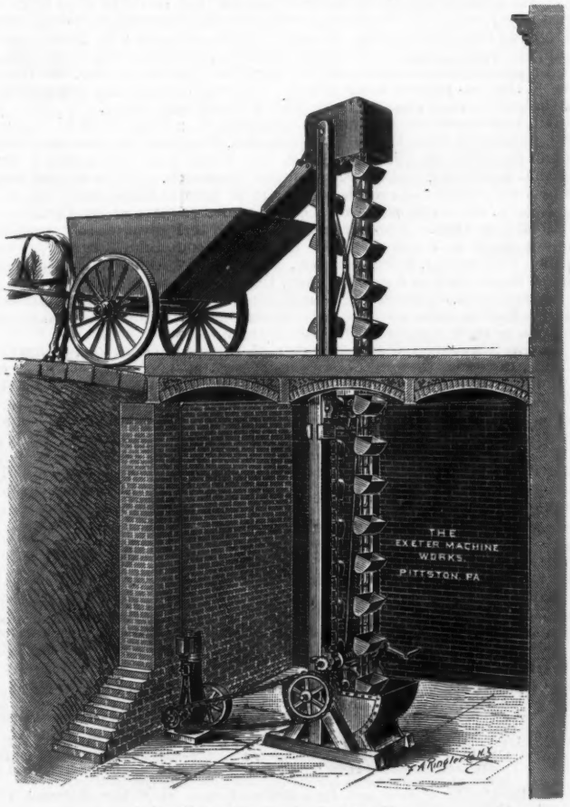
smelt a ton or more of iron within 15 minutes may be generated, sustained, and applied at will without the use of carbon electrodes and without excessive heating or injury to other portions of the circuit.

2. Castings of iron and steel, up to a weight of 200 lbs. or more, have been made, which have shown all the desirable qualities - smoothness of surface, fineness of texture, and freedom from the impurities which are always more or less incident to smelting by ordinary methods.

3. Pig iron of excellent quality has been produced in small quantities by direct smelting from Swedish ores. The tests of this iron, as made by the Royal School of mines at Berlin, give net results, which may be summarized in the statement that the tensile strength of a round rod 10 mm. (0·39 in.) in diameter was 3,410 lbs., and the resistance to compression of a rod 301 mm. (11 85 in.) in length and 30 mm. (1·18 in.) in diameter was 57,850 kilos., or 127.270 lbs: that is, about 22,000 lbs. and 116,000 lbs. per square inch, respectively.

A CONVENIENT ASH ELEVATOR.

The accompanying illustration shows a convenient device for removing ashes or similar refuse from cellars of buildings or similar positions. The construction is simple and will be readily understood from the engraving. The elevator may be operated by any power that is available; in the engraving it is shown with a small steam engine. The portion projecting above the ground level can be raised and lowered by the crank shown at the bottom of the machine. When not in use it can be lowered, when the buckets will drop down into the boot at the foot, and the opening through which the hoist works can be closed. This elevator is manufactured by the Exeter Machine Works at Pittston, Pa., and is at work successfully in several places.



AN ELEVATOR FOR ASHES, ETC.

The Iron Ore Mines of Ouelhassas, Algeria.—At these mines several kinds of ore, mostly red hematites, containing more or less manganese, occur, closely associated with compact and hard limestone of the secondary period. Their hardness is variable—generally greatest at the surface of the beds. The richness of the beds varies greatly from ore containing 61 per cent. of metal to the limestone containing hardly any. The iron region of the Ouelhassas consists of 31 recognized beds of iron ore, forming nine distinct groups; but from a topographical point of view these may be reduced to four, viz: (1) That of Beni saf, including the beds of Dar-Rih and of Ras-el-Baroud (powder grotto); (2) that of Teni-Krent; (3) that of Djebel-Haouaria (formerly the property of the English company of Camerata); and (4) that of Sidi-Safi. In 1874 work was begun on several beds and proved more or less successful. At present but one is being worked—that of Ras-el-Baroud—and the results are quite satisfactory. Since 1874 over 4,000,000 tons of ore have been shipped from the port of Beni-saf to various parts of the world, and the beds are far from being exhausted. The ore is mined in open work and reaches the harbor in cars, both horse and steam power being used, and by gradients upon which the force of gravity is utilized. There is but one loading berth. The facilities of loading are such that cargoes of 2,000 tons are shipped in 24 working hours.

CONDITION OF LABOR IN THE MINING AND METAL INDUSTRIES OF RUSSIA.*

The direction of the mining and metal industries of Russia, exclusive of Finland, is almost entirely in the hands of the Mining Department of the Ministry of State Domains. The government mines and works are divided into six districts, each under the supervision of a mining inspector. The chief inspector of the Oural Mines also has control over the private mines in this district. Private mines and works are under the immediate supervision of 34 district engineers, who in some parts of Russia are subordinate to mining boards established in certain towns to control the district engineers. Special arrangements exist for the supervision of the Altai and Nertchinsk mining districts of Siberia, and of the mining and metal industries in the province of the Don Cossacks. The naphtha industry is under the direction of the Ministry of Finance.

During the last 20 years the total number of workmen has almost doubled. The following table shows the numbers employed in the different branches of the mining, mineral and metal industries from 1886 to 1890:

	1886.	1887.	1888.	1889.	1890.
Coal mines	33,158	32,781	37,957	43,275	40,571
Gold and platinum	74,950	85,643	89,215	90,023	87,961
Argentiferous lead	5,738	4,279	5,532	4,852	4,906
Copper	7,487	9,016	9,812	10,239	11,458
Zinc	1,119	1,220	1,299	577	979
Manganese	1,138	1,318	873	829	3,096
Mercury	70	206	282	702	687
Other metallic mines	...	15	2,592	1,464	495
Iron mines and works	197,488	224,737	230,850	216,637	233,654
Sulphur mines and works	250	157	88	35	38
Naphtha industry	3,051	4,102	3,348	4,793	5,994
Asphalt	349	430	453	408	378
Salt	16,194	19,927	14,385	19,607	19,102
Phosphorite clay and quarries	11,639	11,181	22,012	22,984	21,264

In central Russia, Poland and the Ourals, where the mining industry has long been carried on, local workmen are chiefly employed, but in northern and southern Russia and Siberia the industry is of too recent establishment for a sufficient population to have settled round the mining centers.

Until about 1855 coal was only worked in Poland and in the south of Russia, and the total production was not 10,000,000 pouds. Since that date, the Government has endeavored to establish the industry in central Russia, as well as in the districts of the Ourals, the Caucasus, and in Siberia. The great development of the industry which has taken place in recent years is seen from the fact that in 1890 the total number of mines worked in European Russia and Siberia was 330, or 23 more than in 1886. The following table shows the number of workmen employed above and under ground in 1890.

Coal field.	Under ground.	Above ground.	Total.
Donetz	.....	.....	25 167
Poland	6,077	2,615	8,692
Moscow	1,733	719	2,452
Oural	1,176	1,250	2,426
Kirghiz Steppes	125	22	147
Kievo Elisavetgrad	21	7	28
Sachalin	277	236	513
Kousnetsk	207	403	610
Caucasus	206	164	370
Total	.....	.....	40,409

The above total shows that the number of workmen in the Donetz district far exceeds that in any of the other coalfields, but, on the other hand, the average annual output per man is greater in Poland than in this district. In 1890 the total output of the Donetz mines was 183,249,000 pouds, whereas the Polish mines produced 150,792,500 pouds, with a far smaller staff of workmen. This difference is ascribed partly to the greater thickness of the coal veins in Poland, but partly to the more extensive application of steam power in working the mines.

The Donetz coal basin, in the south of Russia, is the most productive region in iron and steel in recent years. Charcoal fuel is principally used for the manufacture of pig iron, but in some cases coal is used, either alone or mixed with charcoal. The charcoal furnaces are generally of a very primitive character, and work with a cold blast, but during the last 10 years great changes have taken place in the manufacturing processes. For instance, in 1882, out of 200 blast furnaces, 110, or 55%, worked with a cold blast, while in 1890 this number was reduced to 69, or 32%, and the hot blast was employed in the remainder. The backward state of the iron trade in Russia, compared with other European countries, is ascribed mainly to the small extent to which mineral fuel has been as yet employed in the process of manufacture. In 1890 there were seven furnaces in Poland working on a mixture of charcoal and coal, and five working exclusively on coal, while seven in the south of Russia were working on coke. The following table shows the number of men employed in the iron and steel industries during the period 1886–90:

	1886.	1887.	1888.	1889.	1890.
Ourals	145,910	174,018	177,188	158 486	165,057
Central Russia	21,187	20,183	19,954	21,858	25,754
Poland	11,021	10,541	12,234	12,460	11,376
South and southwest Russia	5,906	6,603	9,260	10,294	15,688
North Russia	9,382	9,254	7,028	8,481	1 ,652
Siberia	2,380	1 814	1,933	2,422	1,930
Finland	1,652	2,524	3,182	2,636	3,177
Total	197,488	224,737	230,750	216,637	233,644

The above table shows that the number of men employed is very high in those regions where charcoal is exclusively used. Thus, in 1890, the output of pig iron in south and southwest Russia was 13,417,000 pouds, while central Russia only produced 5,753 000 pouds, with a far larger staff of workmen. This is due to the great labor necessary for the preparation of the charcoal.

In addition to the workmen engaged in metal-working factories, a great number work in their own homes in the rural districts. The villages of Pavlovo and Besvodnoye, which are respectively famous for the cutlery and wire manufactured in them by the koustari or peasant workmen, are the most important centers of the domestic industry in the metal trades. It is quite impossible to estimate the number of persons employed in this or any other branch of domestic industry, but it is stated that not

* Abstract from report of British Labor Commission.

less than 19,000 peasant households are engaged in metal working either in their own homes or in small domestic workshops.

In considering the rate of wages paid to Russian workmen, it must be remembered that the conditions of their employment are in many essential points totally unlike those which obtain in other European countries. Factory workers are not usually dependent entirely upon their earnings, but look upon them as merely a supplement to the income they derive from agriculture. Although a change is taking place at the present time, and the number of landless poor is largely on the increase, still the fact remains that most factory workers possess a certain amount of land, and return to it every year to spend several months in its cultivation. In other cases one member of the family works in a factory, while the others remain at home to cultivate their plot of land. Thus, the factory worker is only in rare cases entirely cut off from agricultural pursuits as in other European countries, nor can a sharp line of distinction be drawn between the urban and rural working population. The average yearly wages of a factory worker are stated to be 187·60 roubles, counting the year as consisting of 288 working days of 12 hours. In the metal and mineral industries, as in other trades, the rate of wages varies greatly at different seasons of the year, as well as in different localities. During the summer months the workmen generally prefer to cultivate their own land, or to work as agricultural laborers for a wage which is often considerably in excess of what they would earn in the workshops. Payment is either by time or by the piece, but the latter (sdielnaia plata) appears to be the more prevalent. The "artels" of starateli in the Oural gold mines do not receive any wages, but the members of the artel sell the gold they have obtained to the owner of the mines.

Children under 15 years of age may not be employed at all in underground work connected with mines, and their hours of labor above ground in any industry must not exceed eight a day, with an interval after four hours' work, or six hours without a break. In many cases, especially in smelting works and in the manufacture of machines, the latter system is found preferable, as by organizing the children in two shifts of six hours each, their hours correspond with those of the men. Work between 9 p. m. and 5 a. m. is prohibited for children of this age.

An Ocean "Whaleback."—The new British whaleback steamship "Turret Bay" arrived recently at Montreal. She is the third of the turret-deck type built by Messrs. W. Doxford & Sons, of Sunderland, to the order of Peterson & Co., Newcastle, and has a carrying capacity of 3,800 tons on a net register of only 1,375 tons. When loaded she has a draught of only 19 ft. 7 in. The model is based on that of the whalebacks in use on the lakes, with some modifications to fit the vessel for the different conditions found on the Atlantic. The success of the first of this type, the "Turret," which was built by the same firm in 1892, has led to placing of orders for five more which are now under construction. Augier Brothers, of London, will own four of these, and Peterson, Tate & Co., who made the experiment in the first vessels of this type, will have the fourth.

The Peat Beds of the Kennet Valley.—From time to time the peat beds at Newbury, England, have yielded abundant remains of prehistoric animals, which, in primeval ages, roamed along the Kennet Valley, when the physical conditions obtaining in western Europe were altogether different from those which now prevail—before, in fact, the present insular position was brought about. In these peat beds have been found the remains of the colossal mammoth, including the portion of a tusk, which, when entire, must have been 10 ft. to 12 ft. in length, together with the bones, teeth or horns of other animals which have utterly disappeared from the face of the earth. The drainage works which are now being carried on in the town of Newbury have brought to light, mostly in a high state of preservation, numerous bones, skulls and other fossil portions of animals which lived on subsequently to the disappearance of the post-glacial mammals, such as the wolf, bear, wild boar, red deer, roe, goat, dog, fox, horse, etc. Various objects of flint, characterizing the age of stone, have also been found in the lower layers of the peat. Several articles of a later epoch have been also met with, such as bronze buckles of many kinds, implements of bone, Roman pottery, a few coins, a variety of keys, etc.

The Serve Ribbed Boiler Tubes.—On the Northern Railroad of France some experiments were recently made with Serve ribbed boiler tubes in a stationary boiler of the locomotive pattern. In this boiler the grate had an area of 14·4 sq. ft.; the old plain tubes were 166 in number, 1·97 in. diameter, and 14·65 ft. in length. The heating surface in the furnace was 82 sq. ft., and in the tubes (before alteration) 1,151 sq. ft.; the steam prssure was 92·4 lbs. per sq. in. The boiler under trial was tested alone, and also when working along with the other boilers. The first Serve tubes tried were 2 in. diameter and had ribs of a depth of 0·43 in., which raised the heating surface from 1,233 sq. ft. to 2,336 sq. ft., but reduced the section open to the passage of the gases from 2·84 sq. ft. to 2·56 sq. ft. With natural draught the vaporization per lb. of coal was very slightly increased, the same amount of steam being made in the day with a somewhat reduced consumption. With forced draught, however, the production of steam per lb. of coal was increased by as much as 12·5%, the best effect being got with a draught pressure lying somewhere between 1¼ and 2¼ in. of water. The temperature in the smoke-box was lowered from 518° F (with smooth tubes), to 338°. The temperature of the steam being 322°, it is seen that very little more use could possibly have been made of the combustion. The objection, however, to this experiment was that the tubes got often choked with ashes; and therefore a tube of 2·05 in. diameter was tried with ribs 0·35 in. in depth, the ribs extending to a length of 8·2 ft. only, and the rest of the tube being smooth. The section for the passage of gases was now increased to 2·69 sq. ft., and less choking of the tubes occurred; the efficiency was much the same as in the preceding case. Tubes of the same size were therefore tried with ribs of 0·275 in. projection, both extending the whole length of the tube, and also for a length of 8·2 ft. only. The results were much the same, whether the rib was of the full length of the tube or not, and showed a vaporization of 25% in excess of that of smooth tubes for the same amount of fuel, with a draught of 3 in. water pressure. With tubes of this depth all difficulty as to choking disappeared. With the shallower ribs, it was found that a greater draught gave maximum economy than with deeper ribs. The tubes used in these trials have now been fitted on two locomotives under repair, with an increase of weight in one case of 154 lbs., and in the other of 220 lbs. Fresh experiments, in service, with these locomotives are now in progress.

Test of Rapid-Fire Guns.—For some time past tests have been going on, under charge of the Ordnance Bureau or the United States Army, of rapid-fire guns of different patterns. In a recent test there were six six pounder and one three-pounder rapid-fire guns—the Driggs-Schroeder, Sponsel, Seabury, Hotchkiss, 50 caliber smokeless powder. Maxim-Nordenfelt, Hotchkiss, brown powder, and Skoda three-pounder guns. The Hotchkiss 50-calibre and the Skoda three-pounder were not in competition with the other five, the object with respect of each of these two being simply to determine its abstract merit. The Hotchkiss 50-caliber and the Seabury were not on the programme for the last test. The weights of the different breech blocks, all moving parts included, are as follows: Sponsel, 59 lbs.; Driggs Schroeder, 31 lbs.; Maxim-Nordenfelt, 73·5 lbs.; Hotchkiss, 58·5 lbs.; Seabury and Skoda not yet weighed. The Sponsel, Maxim-Nordenfelt, Driggs-Schroeder, and Hotchkiss guns had been fired 181, 171, 240, and 154 rounds respectively during tests before. The Skoda had been fired 134 rounds. This firing had been done to test the action of the mechanism, to determine the velocity of the projectile, to ascertain the time required to fire 100 rounds, and to note the condition of the guns after they were fired; for accuracy, at ranges of 1,000 yds., one mile, and 3,000 yds., respectively. The object of the last test was to ascertain the number of rounds that could be fired from each gun in periods of five seconds, one minute, and three minutes respectively. After the three-minute test of each gun, one round was fired from the gun, the main spring, sear spring extractor, and firing pin were removed and replaced by new ones, and the gun fired another round, the time between the two reports being noted. This was done by the representative of the gun in each case. The following times were made.

Driggs-Schroeder Six-Pounder.—Number of rounds fired in 1 minute, 34; number of rounds fired in 3 minutes, 83; time to dismount block, removing main spring, sear spring, and firing pin, extractors, 1 round fired at beginning and end, 2 minutes 4·8 seconds. In the second test, to determine number of rounds that could be fired in three trials of 5 seconds each, the result was a total of 9 rounds, or three at each trial.

Hotchkiss Gun.—Number of rounds fired in 1 minute, 28; number of rounds fired in 3 minutes, 83; time to dismount block, removing main spring, sear spring, firing pin, etc., 1 minute 37·4 seconds. In the second test of three trials of 5 seconds each, there were fired six rounds.

Sponsel Gun.—Number of rounds fired in one minute, 24; number of rounds fired in three minutes, 73. In its three trials of five seconds each, there were eight rounds fired, three, three, and two.

Maxim-Nordenfelt Gun.—Number of rounds fired in one minute, 20; number of rounds fired in three minutes, 65; time to dismount block, etc., 3 minutes 33·4 seconds. In its three trials of five seconds each, there were seven rounds fired, two, three, and two.

The trials were made by a crew of three or four men, as the guns required. Having everything in readiness, at the word the firing began and continued until the time limit was reached. The record was then officially made and the next gun taken in hand. Further tests will be made with these guns until all points of efficiency have been covered, after which detailed reports will be made to the government.

PATENTS.

UNITED STATES.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

TUESDAY, MAY 29TH, 1894.

520,404. Gas-Furnace. Gottfried Axdorfer, Hamburg, Germany, Assignor of one-half to Christian Heinrich Friedrich Sass, same place. Combination of a combustion chamber with a mixing chamber having separate inlets for gas and air.

520,405. Air-Compressor. Joseph Birner and Henry Messing, Elizabeth, N. J. Combination of a pump plunger, a piston-rod and crosshead, a lifter-plate secured by tie-rods, a hammer movable between the crosshead and lifter-plate and means for raising and dropping the hammer.

520,448. Packing for Pistons and Rock-Drills. Heman M. Osborn, Calumet, Mich. Combination of flexible metallic packing with a rotating nut and rifle-bar

520,453. Smoke-Consumer. Frank S. Sejnoha, Chicago, Ill. An adjustable blast-hood adapted to receive a blast of steam and air and to deliver the same into a combustion chamber.

520,466. Hydraulic Air-Pump. Edward H. Weatherhead, Cleveland, O., Assignor to the Cleveland Faucet Company, same place. This pump is provided with air and water chambers, a piston, a hydraulic returning piston and chamber and the necessary water-passages.

520,481. Ore-Roaster. Owen W. Davis, Jr., Middlesborough, Ky. A kiln having inner and outer walls forming a combustion chamber with vertical buttressing walls forming subdivisions; provided also with fuel supply pots.

520,524. Coal-Separator. William H. Herring, Wilkes-Barre, Pa. Combination with the inclined, separating plane of a feeding and starting wheel at the upper end.

520,551. Furnace. Joseph W. Wilkinson, Des Moines, Iowa, Assignor to the Des Moines Fuel Saving Furnace Company, same place. Combination of hollow side-walls and air-chambers adapted to discharge air inwardly over the fuel on the grate with an air heating arrangement in rear of the bridge wall.

520,569. Boiler and Furnace. Rudolf Muller, Hamburg, Germany, Assigner to Maximilian Berendt, Max Du Roi Droege, Ernst Hadenfeldt and Johannes Semler, same place. Combination of an outside furnace inclosed in a jacket connecting with the main boiler.

520,592. Machine for Drawing Bars or Rods. Philip M. Haas and Charles S. Dutton, Youngstown, Ohio. Combination of dies, grips and pulling mechanism.

520,619. Rock Drill. Joseph H. Smith, Plymouth, Ohio. Head with elliptically curved sides, clearance openings and pairs of drill points.

520,631. Apparatus for Smelting and Refining Copper. Johannes C. Bull, Erith, England. A converter with conical bottom provided with passages and connecting with a separate vessel containing the oxidizing agent.

520,641. Kiln. Frank Halbeisen, Erlin, O. A kiln with outside furnace and upright flues and passageways.

520,684. Radial-Tube Steam-Boiler. Edward S. T. Kennedy, New York, N. Y. Upright boiler with central stand-pipe and radiating tubes.

520,741. Steam-Boiler. William Saur, Washington, D. C., Assignor by direct and mesne assignments of two-thirds to George H. Hammer, William H. Yeatman, and Jacob J. Beck, same place. Tubular boiler with outside metal casing containing the grate and firebox.

PERSONALS.

Mr. E. Renshaw Bush has recently been visiting and inspecting some mines in Alaska.

Mr. Charles Lane, of San Francisco, is visiting Alaska on business connected with the mines.

Mr. J. G. Marx, of Butte, Mont., has been inspecting some mining properties in Okanogan County, Washington.

Lewinson & Just, consulting engineers and contractors, have removed from 90 Nassau street, New York, to 128 West Forty-second street.

Mr. Geo. K. Fischer, consulting and mechanical engineer, formerly of Denver, Colo., is now located in Chicago, Ill., Rooms 1647-1648 Monadnock Building.

Mr. O. H. Hahn, the well-known metallurgist, has been appointed superintendent of the Great National Mexican Smelting Company (Guggenheim's) at Monterey, Mexico.

Mr. T. H. Fennell, formerly general superintendent of the Northern Division of the Lehigh Valley road, has been appointed superintendent of the Western Division of the New York & New England.

Mr. George W. Goetz, the well known metallurgist, sails for Europe on June 27th, on professional business. He will visit the different metallurgical works in England and on the continent before his return.

Mr. R. W. Carroll, for eight years past resident manager in Pittsburg of the American Tube and Iron Company, has resigned his position and will engage in other business. His successor is Mr. D. B. McClelland.

Mr. S. T. Wellman, president of the Wellman Iron and Steel Company, of Thurlow, Pa., will sail for Europe, June 27th. He expects to visit some of the prominent steel works in England and Germany during his absence.

A. F. Schneider, late superintendent of the Monterey Guggenheim Works, has returned from Mexico, and is preparing the plans for the great lead and electrolytic copper works, which the Guggenheims are going to erect at Perth Amboy, N. J.

Lieut. W. H. Jaques, chief of ordnance of the Bethlehem Iron Company, has resigned the position. Having successfully accomplished all the obligations involved in the enterprise which he advised the Bethlehem Iron Company to undertake, and in the new industries developed thereby, he has retired from the company to become associated with the well known engineer and naval architect Mr. Horace See, and others, to engage in general engineering work and consultation in connection with the manufacture and treatment of guns, armor, shafting and other war material, the machinery required for their production, and especially with the fluid compression and hydraulic forging of steel and the best types of armor. Their office will be in this city.

SOCIETIES AND TECHNICAL SCHOOLS.

American Railway Master Mechanics' Association.—The Secretary has sent out a final circular calling attention to the fact that the annual convention will meet at Saratoga, N. Y., at 9 a. m., June 18th, the headquarters of the Association to be at Congress Hall.

Colorado Scientific Society.—At the regular monthly meeting in Denver, June 4th, the following papers were read: "Geology of the Cripple Creek Gold Mining District, Colorado," by Dr. Whitman Cross; and "The Ore Deposits of Cripple Creek, Colorado," by Prof. R. H. F. Penrose, Jr.

Master Car-Builders' Association.—Secretary Cloud has sent out a circular calling attention to the announcement of the fact that the twenty-eighth annual convention of the Association will be held at Saratoga, with headquarters at Congress Hall, the first session of the convention to be called to order at 9 a. m., Tuesday, June 12th.

Michigan Mining School.—Prof. F. W. Denton and a party of 20 students have been visiting the mines of the region in the midst of which the school was located. Last week some time was spent in the mines of the Marquette iron range, and later a day was given to the Aragon mine and another to the inspection of the West Vulcan and the Curry on the Menominee Range.

Engineers' Club of Philadelphia.—At the regular meeting May 19th, the following were elected to active membership: Hugh T. Downing, Joseph Kemper, Charles Longstreth, Mason Delano Pratt, Thomas Spencer and Thomas P. Lonsdale; also Mr. George L. Harvey to associate membership. Mr. L. Y. Schermerhorn read a paper on "Improvement of the Delaware River at Philadelphia." He gave a full description of the work now in progress. The paper was discussed at length by members present.

Scranton Engineers' Club.—At the meeting on May 12th it was decided to suspend the regular meetings during July and August, and to have in their place two or three excursions by the club to points of engineering interest in the locality. The mining plant of Eckley B. Coxe, at Drifton, Pa., and the Weir viaduct at Panther Creek on the Wilkes-Barre & Eastern Railroad were places mentioned. A committee was appointed to prepare three excursions and report at the June meeting. On May 19th the club and invited guests assembled at the lecture-room of the Albright Library to hear the reading of a paper on "Steel Rails" by Mr. P. H. Dudley, of Boston. At the social meeting of the club on May 29th Mr. James York, vice-president of the Trenton Structural Steel Company explained his new method of rolling steel shapes. By this method he claims to be able to roll 48-in. I-beams without difficulty.

Academy of Natural Sciences, Philadelphia.—A traveling course in geology, in extension of the regular spring course under Professor Angelo Heilprin's direction, will be conducted on the plan of the European summer schools of taking the students directly to the phenomena of nature as they present themselves in the field. The first part of the course will begin the first week of July and will consist of a three-weeks' journey, by coach, canal, railroad and steamboat, through the eastern and northeastern parts of Pennsylvania. Passing through the mountains of those sections of the State, the journey will extend into the valleys of the Rondout and Hudson, in New York, as far as Howe's Cave. In the course the members of the class will be instructed, apart from the regular field studies, in the art of geological and geographical mapping. The second part of the course will be taken in August to the Bermuda Islands, for the thorough study and examination of the coral formations. The English Government is to conduct extensive dredging operations in the harbor of Hamilton during the summer for the purpose of deepening the channel, which will give the class special advantages for study.

INDUSTRIAL NOTES.

The Midland Steel Company, Muncie, Ind., has a full force of men employed on full time.

The new rail mill of the Cambria Iron Company at Johnstown, Pa., has been put on double turn.

Thos. Carlin's Sons, Allegheny, Pa., recently made a large shipment of phosphate machinery to Florida.

The Illinois Pure Aluminum Company, Lemont, Ill., is successfully manufacturing steam-jacketed kettles made from this metal.

The new granulated steel house of the Crescent Steel Company in Pittsburg is nearly completed and will soon be ready for occupancy.

The W. Dewees Wood Company, McKeesport, Pa., has put on several additional departments, giving employment to quite a number of men.

The plant of the Detroit Foundry Equipment Company will be removed from Detroit to Harvey, Ill., where additional men will be employed.

Messrs. N. & G. Taylor, manufacturers of tin plates, Philadelphia, Pa., report a heavy demand for tin plates. Their works are very busy at present.

The Union Brass Manufacturing Company has been incorporated at Chicago, by Chas. Burleson, C. D. Van Vliet and others with a capital stock of $100,000.

The Brooks Locomotive Works, Dunkirk, N. Y., have just received through Flint & Co., of New York, an order for 30 passenger locomotives for the Central Railway of Brazil.

The Star Bolt and Tool Company, of Pittsburg, has been incorporated by J. C. Jamison, of Pittsburg; Henry Monath, Jr., of Homestead, and others, with a capital stock of $200,000.

The Bethlehem Iron Company is using anthracite coal, and will endeavor to keep the ordnance works running. The scarcity of bituminous coal has kept the works idle for nearly a fortnight.

The Lalance & Grosjean Company, Harrisburg, Pa., will shortly begin the erection of a large tin plate mill, 75 by 200 ft. It is expected the new mill will be in operation by September 1st, with 75 employees.

The Joseph Dixon Crucible Company, Jersey City, N. J., is manufacturing a new form of its graphite lubricant. This is put up in small sticks and enclosed in a wooden cylinder with a moveable top.

The Pottsville Iron and Steel Company, Pottsville, Pa., is using the Archer gas machine, with petroleum, in its open hearth furnaces. The company states that the service secured is fully equal to that from coal.

The contract for the two new stand-pipes for the waterworks at Youngstown, O., has been let to the Enterprise Boiler Company, of that city, whose bid was $17,495. The stand-pipes will each be 30 ft. in diameter and 100 ft. high.

The Gisholt Machine Company, Madison, Wis., has issued a catalogue for the month of May, entitled "Modern Turret Lathe Practice," which is one of a series which it publishes monthly. The illustrations are unusually good.

The Boston Bridge Works, Boston, Mass., has secured the contract for the iron and steel work used in the construction of the framework for the new Worthington Building at the corner of State and Congress streets, Boston.

The Garden City Sand Company, Security Building, Chicago, Ill., has issued a useful and attractive catalogue of the various forms of firebrick, tile and blocks which it manufactures. The catalogue contains 32 pages and is fully illustrated.

Work on the Whittaker mill, at Wheeling, W. Va., is progressing rapidly. The Schiffler Bridge Company, of Pittsburg is engaged in the work of construction and is now employing about fifty hands. The mill will be 600 ft. long and 100 ft. wide.

Queen & Co., incorporated, the well-known Philadelphia manufacturers of surveying and scientific instruments, have opened a New York office at 116 Fulton street. The branch office established at that point will be in charge of Mr. Woolman, as agent for the Philadelphia company.

The New Era Iron Works have been incorporated at Dayton, O., with a capital of $50,000 to manufacture gas engines. The "New Era" engine has been in successful operation for nearly two years. It will be built principally in the larger sizes, and special attention given to its construction for private electric light plants.

A new and very useful aid for the draughtsman and artist is the philograph, recently placed on the market by the Philograph Company, 311 Dearborn street, Chicago. The instrument consists of a frame containing the paper or object upon which the drawing is to be made, and an eyepiece which reflects the subject on the paper.

It is stated that the Kansas City Smelting and Refining Company and the Mexican Central will build a branch road 100 miles from Jimenez, past Paral to the Buencevi mines in Mexico. The necessary concession has been granted by the government and surveys completed. This move will open a rich mining country.

Mr. T. J. Peters has been appointed receiver of the Alabama Iron and Steel Company, of Brierfield, Ala., on the application of the secretary of the company. The company was chartered in 1889 with a capital stock of $2,000,000, and bought out the old Brierfield Iron Company. In 1892 the company gave a mortgage for $2,000,000 on the entire plant to the Central Trust Company of New York.

A large brick manufacturing plant is being located between Contus and Muirkirk stations, three miles below Laurel, Md. Ten acres of fine clay land has been purchased, which it is said runs to a depth of about 100 ft. The company is busy getting materials ready to commence the construction of the plant. A side-track from the Baltimore & Ohio Railroad will be laid. It is expected that large terra-cotta works will be located in the same section later on. A company is now being formed with this intention.

Negotiations have been closed for the purchase of about 15 acres of land at Brinton Station, on the Pennsylvania Railroad, near Pittsburg, by the Westinghouse Machine Company, which will remove its works as soon as buildings are completed. It is not known how soon the work of building will be commenced. It is the desire to have all the Westinghouse interests located together, and this plant will be erected near the new works of the Westinghouse Electric and Manufacturing Company.

The New York Belting and Packing Company, Limited, 15 Park row, New York, are manufacturing "Ruby" packing, which will stand a continuous high degree of heat without becoming hardened, will not squash out, will not dissolve in contact with oils or ammonia, and will adapt itself readily to the uneven surfaces of the flanges. This packing is also made into caskets and rings, as well as casket tubing, in all the regular shapes and sizes. The trademark is the word "Ruby" in the double diamond. The company has just issued a little circular regarding it.

On June 1st the new scale of the Amalgamated Association was printed and mailed to the manufacturers for inspection. The changes in mill rules and the matter of the authority of mill committees are expected to receive the serious attention of the mill-owners and provoke lively discussions in the conferences. The action of the convention in extending the discretionary authority of the conference committee was secured through the national officers. Heretofore their power was limited to presenting and defending the annual scale, but the experiences of the past year have shown how disagreeable and costly that plan is under unfavorable circumstances. One result of the extension of authority will be to have the 60-day limit clause attached to the agreement. The delegates to the Cleveland convention were instructed to prepare a plan to recover the reductions in wages at the first chance. It was decided by the convention that the attempt shall be made as soon as business improvement warrants, and to hasten the event the scale will be signed subject to dissolution upon 60 days' notice, by way of preparation.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

ALASKA.

Alaska-Treadwell Gold Mining Company.—The report for May is as follows: Shipment of bullion $30,734; ore milled, 14,241 tons; sulphurets treated, 244 tons. Of bullion there came from sulphurets, $5,198. The estimated gross expenses for the month have been $19,282. The net profits available for dividends for the present financial year are, therefore, about $405,500, exclusive of profits from sale of stores, and miscellaneous sources.

Bald Eagle Group.—Mr. N. S. Trowbridge, in the interest of California mining men, has purchased this group of mines at Sumdum from the four partners, W. F. Reed, S. B. Robbins, E. F. Schumacher and W. A. Frank, for $60,000, $10,000 cash down and the balance in 6 and 12 months time, says the "Alaska News." The Bald Eagle group of mines was discovered by S. B. Robbins, E. F. Schumacher and W. A. Frank in September, 1889. The following year they cut a trail of 2½ miles from Sandford's Cove to the mine, located on a branch of Robbin's Creek. The workings consist of two tunnels, the first 50 ft. below the surface and 45 ft. in, and the second 50 ft. under the first and run in about 280 ft., showing a ledge that averages 5 ft. in width.

Bennett Mine.—Runkle & Company, lessees of this mine in Silver Bow basin, have received the ironwork and machinery for a cable tramway 400 ft. long for hauling ore.

Dick Willoughby Group.—This group of claims, at Funter Bay, says the Juneau "Alaska News," has been bonded by the owners to B. Gilpin, of Baltimore, Md.

ARIZONA.

Yuma County.

Harqua Hala Gold Mining Company.—During April the mill was idle for 14 hours, repairing a friction pulley and lining up the battery shaft to be ready for connection with the new battery of stamps. Tons crushed, 2,580 tons; amalgam cleaned up, estimated to yield, $32,000; miscellaneous revenue (from general store), $500; expenses on revenue account, $12,100; estimated profit for the month, $20,400; average loss in tailings, $2.65 per ton. The mill addition is nearing completion. Everything is in good working order.

CALIFORNIA.

The Debris Commission has granted no permits in the last three weeks. Only two applications have been received. These are from the Concordia and and Northern Placer mines, both of which are in Plumas County.

Calaveras County.

El Encino.—The drain tunnel of this mine, near Mokelumne Hill, is being pushed rapidly. The gravel deposit owned by the company has been worked from time to time for the past 30 years, but operations were difficult owing to the water. The tunnel will tap this water and drain it off. The gravel is said to be rich in sulphurets which have never been saved, but the company will arrange to save them when the gravel is worked again. F. Chappellet, of San Francisco, is manager of the company.

Kern County.

Little Frank.—A lot of ore from this lode, one of the veins tributary to the Big Blue in Kernville, returned $80 gold per ton.

Los Angeles County.

The Rubio Canyon Gold Mining Company.—This company has been formed for the purpose of developing the mines that have been started during the past year by Messrs. Carson and Dickey on the low ridge lying between Rubio canyon on the west and Pine canyon on the east, says the Los Angeles "Times." Ore is gold bearing, but the mines have not been developed to any extent by reason of a lack of machinery and capital. Mill machinery and an engine will be ordered at once.

Mariposa County.

Coultervilie District.—Mining interests are brightening in the Coulterville section, says the Mariposa "Gazette." The Red Cloud has resumed work. The Louisiana, the Banderita and Bondurant have again begun work, and it is thought that the Tyro will soon be running under new management.

Mono County.

According to the Bodie "Miner," the past year has not been very favorable to mining interests at Bodie, but the indications are brighter now. Several claims have been leased that have long been abandoned. Superintendent Kelly maintains silence relative to the strike in the Bodie. The mine is closed to visitors. Operations on a small scale were resumed at the Mono last week, a few men being put to work to clean out some of the old drifts.

Bodie Consolidated Mining Company.—The latest weekly official letter says: North drift from No. 1 west crosscut, 300 level, was extended 6 ft. The face is in good ore, but broken up somewhat with porphyry boulders. Started a winze from above drift and extended it 5 ft. There is about 12 in. of good ore in the bottom. Commenced to crush ore in the Bodie mill on May 30th.

Bulwer Consolidated Mining Company.—The superintendent's official report for the week ending May 27th says: We crushed 45 tons of ore, the average car sample of which was $16.08 per ton, and the average of the tailings was $5.47 per ton. We are extracting some fair grade ore from the top of upraise No. 7 from the 200-level. The ore seam above the south drift from No. 2 crosscut south continues to yield some good ore, but the seam is small.

Plumas County.

King.—This drift mine, at Prattville, is at the lower end of Big Flat, through which an auriferous channel runs. Recently $700 in channel gold were taken out in five days. The Glazier mine is at the upper end of the flat, and the Angus Cameron is near the center.

San Bernardino County.

Vanderbilt Mining and Milling Company:—This company has put on an additional force and is pushing work on the Gold Bronze mine. In the main shaft the ore body continues to increase in size. The mill is working steadily.

San Diego County.

Golden Eagle.—The last assay from this mine, in Crescent Valley, shows that it is smelting ore and runs $60 to the ton, according to the Escondido "Advocate." Three mines are now being developed in this district, all of them showing good prospects.

Siskiyou County.

Gold Nugget.—Mr. Fitch, of Sawyer's Bar, has gone to San Francisco to make arrangements to bring in a ditch from Russian Creek, a distance of six or seven miles, to the Gold Nugget mine, purchased from the Finley Brothers some time since. The several quartz mines are busy at work, and also the placers along the river, which are expected to pay well when cleaned up.

Shasta County.

A strike has been made in blue gravel in Happy Valley, says the Redding "Free Press." There is a dry gulch running through the place, where a prospector has struck a lead of blue gravel which prospects several cents to the pan. A number of men are at work. It is said that Clear Creek, above Flood's Flat, paid well, and that this strike is a continuation of the old creek channel, now distant a half mile from the creek.

Texas.—A good strike was recently made in the fifth tunnel of this mine at a distance of some 1,500 ft. The ore is reported to be very rich. Mr. R. G. Hart, the owner, will run another and lower tunnel, which, when completed, will be over 2,000 ft. long. A recent shipment of a carload of ore returned about $2,000, says the Redding "Free Press." He has not yet completed his plant for working all his ore at home. In the Bullychoop country, in connection with his son, after spending about $13,000 in experimenting with cyanide, he has erected a roasting furnace. After roasting he will treat the ore by barrel chlorination.

COLORADO.

The receipts of gold at the Denver mint for the month of May amounted to $506,934, as against $99,786 for May, 1893, notwithstanding the fact that this year, owing to the miners' strike, the shipments from Cripple Creek ceased almost entirely.

The output from the Boston & Colorado smelting works at Denver during 1893 was as follows: Copper, 5,357 tons; gold, 61,102 oz.; and silver, 4,177,117 oz., having a total value of $5,607,186. Of this amount $1,071,478 was derived from the copper.

Mineral surveys approved by the United States Surveyor-General for Colorado during the week ending May 26th: 8,814, Pueblo, Galena and Cortez lodes; 8,795, Pueblo, Jerry Johnson No. 1 and Jerry Johnson No. 2 lodes; 8,883, Pueblo, Lookout and E. C. L. & F. lodes; 8,857, Pueblo, Sunny Side and Independence lodes; 8,893, Gunnison, Cebolla placer; 8,861, Pueblo, Tejan; 8,863, Pueblo, Surplus Fraction; 8,867, Pueblo, Nessie Box; 8,872, Pueblo, Lucky Strike; 2,509, amended, Durango, Gunboat.

Clear Creek County.

The following items of Yankee Hill mining news are taken from our exchanges:

Alice Mining and Milling Company.—This company, which owns, in addition to its mines, about 1,000 acres of placer ground, has surveyed out a town site and has named it Alice. This town takes in that fraction of the camp located on Silver Creek at the west slope of Yankee Hill, and is about a mile distant from the main part of the camp called Yankee, in Cumberland Gulch.

Charity.—The owners recently made a rich strike in the Charity of a body of ore 3 ft. wide that assays $50 to the ton.

Ebert.—The lessees of this mine are keeping three large ore teams continuously hauling ore from the Ebert mine to the Champion-Donaldson mill near Idaho Springs.

Old Jahney.—A load of rich smelting ore was shipped last week from this mine to Chamberlain's sampling works at Idaho Springs.

Storm.—This mine has started up work. A force of men is sinking the main shaft.

Dolores County.

Enterprise Mining Company.—According to the Rico "Sun" the Enterprise mine is shipping from 100 to 120 tons weekly to the Rico Smelter. In addition several cars of high grade ore are sent to Denver.

Eagle County.

The following items of Red Cliff mining news are from our exchanges:

Alligator.—Wignall & Smith will also shortly erect a concentrating mill on this property which has much low grade ore.

Alpine.—States and Woods are putting in a Miller concentrator on the Alpine in Eagle canyon, and will thoroughly work the dump, the ore of which assays from 1·4 to 4·3 oz. gold. Work is also progressing in the tunnel.

Belden.—The recently opened channel has been followed now for 180 ft., and the ore body exists its entire length, having been first tapped by a raise 23 ft. above the drift, next by a raise 15 ft. above, and finally on the level of the drift, whence it has been followed on an incline through solid ore, from 7 ft. to 15 ft. thick, to its breast, where crosscuts have been run on the ore, opening a large ore body. The breasts of both cross-cuts are in ore, and the one to the right hand shows a large open country, having sand and bowlders of carbonate. This body has a direct trend with the claim, and 80 ft. from its lowest point a cross cut is being driven at the 600 ft. level. The cross-cut to the left of this level has opened a 12-ft. body of carbonates near the Eagle Bird line, which is being systematically followed. At present shipments are made only from ore extracted in process of development, the main body being reserved until such time as the lead market warrants heavy shipments.

Ground Hog.—In the Forgery-Nottingham lease at this property a pocket of bessite ore has been struck in the main channel which gives high assays.

El Paso County.

At Cripple Creek last week's heavy rains did great damage. Many mines have been flooded and tunnels have caved in.

(From our Special Correspondent.)

Briefly summed up the loss consequent on the four months' strike at Cripple Creek has been approximately as follows: Loss to labor, $.80,000; loss to merchants, $60,000; loss to freight, $55,000; loss in dividends, $200,000, making a total of $595,000.

The amount of new capital prevented from coming into the camp has been great. A careful estimate would place it at $500,000.

Victor Gold Mining Company.—The victor mine sale is almost consummated, Mr. Belvin, of New York, and Mr. Wm. Farrish, of Denver, being the experts. The latter's report summed up is as follows: High grade ore, $420,000; low grade ore, $200,000; gross, $620,000, without the dump.

Fremont County.

Florence Mill.—Men are at work excavating for the big Florence stamp mill. The contractors say they will have the mill up and running in 45 days. The first carload of machinery arrived at Colorado Springs last week. The mill will have an initial capacity of 150 tons per day. Its full capacity is 1,000 tons per day. The mill is being built by Denver and Chicago capitalists to handle low grade ores from the Cripple Creek mining district.

Grant County.

According to the Silver City "Sentinel," a lease and bond has been executed to John Brockman and C. P. Crawford on the property of James Thwaits, J. Douglas Smith, Henry Schmidt and J. M. Kierscey, in the White Signal district in the Burro Mountains. Messrs. Brockman and Crawford will at once begin active developments on these properties.

Pitkin County.

Nearly all of the blocks of ground in the Bushwhacker, Della S. and Mineral Farm, which have been put up for lease, have been taken.

Alta-Regent, Aspen.—The Cowenhoven tunnel has reached this property and drifting for the ore has been begun.

Champion-Empire, Aspen.—Connection has been made by the Champion-Empire with the Cowenhoven tunnel, but Mr. Fitzgerald, the lessee, will continue to ship over ground for the present.

Free Silver Mining Company.—The new shaft is now down 70 ft.

Tourtelotte Park.—The Aspen mountain road has been opened up, making it possible for the leasers in Tourtelotte Park to get to market. The Camp Bird, Celeste, Highland Light, Schiller and one or two others have already begun shipping. Ashcroft properties, notably the Tam O'Shanter and Montezuma, will soon begin to ship, they having been at work all winter, although practically snowbound.

San Miguel County.

Belmont Mill.—The electric line to convey the power from the San Miguel Consolidated plant to

the Belmont mill is about completed, the motor is in place, and the mill will be running within a short time, when a large force will be put at work on the mine.

Columbia.—This mine, in Savage Basin, will be extensively worked hereafter. Receiver J. T. Hearons, of Ouray, and F. H. Smith, of Fort Pierre, S. Dak., are in Telluride paying off past indebtedness of the mine and making arrangments for the steady working of the property. The capacity of the mill will be increased to 20 stamps and a bucket tramway erected from the mine to the mill. Mr. Smith contemplates running the mill and hoister by electric power to be furnished by the San Miguel Consolidated company. A 75 H. P. motor will be used. Seven hundred feet of stoping ground are already opened up and a small force of men is now at work opening up more. The ore at the foot of the 100-ft. shaft, sunk from the tunnel, on the vein, is richer in gold than at the tunnel, showing that the gold value increases with depth. Within a month 75 men will probably be employed on the property.

Gold King.—This mine and 40 stamp mill and the Suffolk group of mines and its 40-stamp mill are running steadily and shipping large retorts regularly.

San Miguel Consolidated Gold Mining Company.—At this company's mill 115 stamps are working on Champion ore.

Smuggler-Union Mining Company.—The Bullion tunnel, which this company has been driving for three years past, was completed recently, connection having been made with the Union shaft 1,600 ft. from its mouth. The tunnel is 2,600 ft. long. By next fall, as there are only 600 ft. to drive, the fifth level south of the Smuggler and Union shaft will be connected. Then the output of the Sheridan-Mendota and Smuggler-Union properties will be handled through this system of underground workings and dumped in the ore bins at the head of the tramway, saving the expense of hoisting, teaming and multiplied handling of the ore on the surface and avoiding delays in winter from snowstorms. The ore encountered recently on the Union, at a depth of 1,000 ft., while drifting for the vein from the Bullion tunnel level, is said to be rich in gold and silver and work is being steadily prosecuted at this point and the ore sorted and shipped.

FLORIDA.

During the month of May the total shipments of phosphate rocks from Port Tampa were 22,230 tons, and from Punta Gorda, 13,961 tons.

IDAHO.

Boise County.

Bella Mining Company.—This company has put a force at work in its Edna mine, near Banner, and will increase the number as fast as the men can be used to advantage. The ore carries silver chiefly, and is worked for the present at the Elmira mill, but the company is making arrangements to put up a mill of its own.

Elmira Mining Company.—This company, at Banner, has let a contract to Horace Aubury, Herbert Blackman and A. B. Day to run the long tunnel from the present point to the Banner ledge. They will commence the work at once. The distance to be run is about 200 ft.

Grimes Creek Placers.—The old channel ditch is being put in order to carry water to work these placers.

Illinois Mine.—A track is now being laid in the tunnel to carry cars, and as soon as it is finished a second shaft will be put on. The ore now coming out carries free gold and is going to the Blaine mill. The owners expect to keep the mill busy all summer with the ore now in sight.

South Africa Mine.—The new five-stamp mill is nearly completed and ready to start up. The miners are sinking the shaft a little deeper, and when this work is completed they will begin to drift on the vein.

Kootenai County.

Kootenai Hydraulic Mining Company.—This company has lost several sections of its flume, which have been washed out by the high water in the Pend d'Oreille River, and work must be suspended for a time.

Yahk River Placers.—A considerable number of miners have started for the placers on the Yahk River, which are near the international boundary line.

Lemhi County.

Some local excitement is reported over the discovery of rich placers on the Salmon River. The accounts need confirmation, however, and reports must, for the present, be accepted with caution.

Oneida County.

Lucky Boy.—Prospecting continues actively at this claim near Malad City. The latest tests show a flood proportion of copper in the ore. The owners are arranging to organize a company, and purpose continuing development work on the claim.

KANSAS.

Cherokee County.

(From our Special Correspondent.)

Galena District.—The lead and zinc mines were generally in operation here during the week and the production fully up to the average. Col. W. B. Stone, of the Southside Mining and Milling Company, has been keeping his pumps running steadily and now has the water in his mines under control so that the miners will get in the ground this week. The Galena Lead and Zinc Company is in active operation and making a steady production of lead and zinc ore. The district sold during the week 1,058,000 lbs. of zinc ore and 260,000 lead, value $12,684.

KENTUCKY.

Union County.

Sturgis Coal & Coke Company.—This company has been in the hands of the Ohio Valley Banking and Trust Company, of Henderson, Ky., as receiver, since March 10th, and recently was purchased by Chicago capitalists, who expect to push forward operations.

MICHIGAN.

Copper.

Atlantic Mining Company.—This company's mine reports a total product of 236 tons 1,585 lbs. in May.

Calumet & Hecla Mining Company.—It is announced that this company has made a large sale of copper to consumers. The exact quantity and the price are not stated.

Franklin Mining Company.—The output of the mine in May was 180 tons, as against 174 tons in April and 151 tons in May, 1893.

Minnesota Mine.—The old Minnesota mine has at last been opened into again, says the Ontonagon "Miner." The owner, Mr. B. Jeffs, of Rockland, has had a party of six miners at work all the winter driving in a drift from the south side of the bluff, which was holed on Thursday into the mine at a point where the big 500-ton mass was taken out. Not enough work has been done yet to enable him to make an examination of the mine, as there is a great deal of loose and falling rock in the way. He expects, however, to find some good copper ground that will pay to work. Mr. Jeffs is a firm believer in the wealth of the old "mother of mines."

Quincy Mining Company.—The output of this company's mine during the month of May was 800½ tons of copper.

Wolverine Mining Company.—No. 3 shaft is timbered almost to the 9th level, No. 2 is sinking to the 11th level. There is very little change to note in the appearance of the mine. The ground holds about the same as for some time past.

Iron—Marquette Range.

Cleveland Iron Mining Company.—The water in Lake Angeline is being rapidly lowered by the company's pumps.

Iron—Menominee Range.

Dunn Mining Company.—Corrigan, McKinney & Co., of Cleveland, have been given a new lease by the owners of the Dunn mine, says the Norway "Current," and the preparatory work for a resumption of operations was begun this week. The property will be wrought by the Dunn Mining Company, and it it the intention to mine and ship this season 100,000 tons of ore. As soon as they can be economically placed, 100 men will be employed and this force will be gradually increased to enable the management to mine the amount of ore required. The fee-owners have made a reasonable rate of royalty and there is no reason to suppose that the Dunn will not henceforth take its place as a permanent producer.

Mastodon.—A force of 25 men is now employed on this mine, which will be increased to 50 shortly. The ore mined is at present going into the stock pile.

MINNESOTA.

(From our Special Correspondent.)

Iron ore shipments for the month of May from the port of Two Harbors were the largest on record, with one exception, being 239,000 tons. For the season the port has shipped 281,000 tons, about 100,000 tons ahead of last year to this date. From Duluth shipments to the same date were 85,000 tons. By companies the shipments have been: Minnesota Iron Company, 246,000; Rockefeller Consolidated, 85,000; Franklin Mining Company, 35,000 tons.

Duluth.

(From our Special Correspondent.)

The Missabe road is extending and completing its great ore dock. The work will be done in about two weeks, when the dock will have 5,000 ft. of loading frontage and a storage capacity for about 76,000 gross tons.

Duluth Barytes Company.—This company has begun active work at its new milling plant in Duluth and has already shipped some air-floated barytes. It expects to turn out as high as 25 tons of product daily. The crude barytes is obtained on an island in Lake Superior, where the deposit is large and very pure. Chas. Brent is engineer of the company and W. P. Lardner its treasurer.

Iron—Mesaba Range.

Biwabik Iron Ore Company.—No work has yet been done this season on the company's property. Reports are current that the company is negotiating for a sale of its property to the Minnesota Iron Company, and that nothing will be done until the sale question is settled.

(From our Special Correspondent.)

Lake Superior Consolidated Company, Duluth.—The route of the Duluth, Missabe & Northern road into the Adams mine has been filed, and it is expected that some work will be done at the mine this year. At this company's Mountain Iron mine a second steam shovel has been put into the ore and 200 cars will probably be the average daily output. A few days ago 4,400 tons of ore was loaded on cars by one shovel at this mine.

Minnesota Iron Company, Duluth.—At the Auburn mine a shaft is down 160 ft., and two drifts are being run under the stripping. Boilers and engines are being set preparatory to lively shipping before next month.

Iron—Vermilion Range.

Pioneer Mine.—Drifting and shaft-sinking has begun on this mine at Ely, and new engine-houses and engines and boilers are to be put up preparatory to a large output next year.

Pioneer.—This company, says the Ely "Times," has started at the fifth level, the water having been pumped out to that depth. It is intended to develop the mine thoroughly during the summer, to dig one or two shafts, build engine houses, put in new machinery and be prepared to ship a large quantity of ore next season. Probably from 100 to 200 men will be employed during the season.

Zenith Iron Company.—This company was lately sued by Mack, Nye & Company, of Cleveland, O., to recover a balance of $28,222 claimed to be due for advances not covered by iron ore sold. Later, a notice of dismissal was filed.

St. Louis County.

Bevier Mining Company.—This company is now putting up a stamp mill at Rainy Lake City, and is making preparations to work its claim, the Little American, on which some development work has already been done, in a thorough way. Other gold claims in the neighborhood have been taken up, but this is the first mill.

MISSOURI.

Jasper County.

(From our Special Correspondent.)

Carterville District.—This district was unusually active and the sales of zinc ore heavy. The Chatham Mining Company sold 573,010 lbs. of zinc ore; Eleventh Hour company 650,450 lbs. zinc and 135,250 lead, other companies making large sales. The Mound City Mining Company on Saturday sold one lot of 500 tons at $16 per ton. This company has been holding their ore for some time. Mr. Louis Helm, the manager of the Mound City, has just returned from St. Louis and states positively that his company will commence at once the building of a two block zinc smelter. The air has been filled with smelting schemes since early last spring, and if one-half the projects were carried out this would be the greatest smelting point in the United States. Carterville has suffered a heavy loss recently from the burning down of four large concentrating plants, and it is the general belief that the fires were all of incendiary origin, and a number are under the watchful eyes of the proper officers, and at any time we expect to hear of the guilty parties being placed under arrest. The insurance companies have instructed their agents at Webb City and Carterville to call in all of their policies and take no more risks.

Joplin District.—There was a slight advance in the price of zinc ore last week, which made a marked increase in the general activity of the mining industry. The ore buyers were all in the market and ready to pay from $16 50 to $19 per ton, and at the close of the week some sales of choice lots of ore are reported at $18 per ton. Lead ore was on the decline; the market opened at $17.50 per thousand and closed at $17. The sales from the district are as follows: 1,070,390 lbs. of zinc ore and 377,690 lead, value $15,251.

Oronogo District.—The Granby Mining Company and the Margarum Company were the only producers here during the week and sold 18,530 lbs. of zinc ore and 92,570 lead, value $1,370.

Webb City District.—The Center Creek Mining was very active during the past week, and sold 688,010 lbs. of zinc ore and 29,450 lead. The Garrison Mining Company sold 65,330 lbs. of zinc ore and 1,400 lead, other companies making small sales, so that the total was 937,805 lbs. of zinc ore and 53,550 lead, value $8,902.

MONTANA.

Beaverhead County.

Old Faithful Mining Company.—This company is now employing 30 men, running a 20-stamp mill with a capacity of from 30 to 40 tons a day, averaging $16 to the ton. The company is capitalized for $500,000. Mr. Thomas, the secretary and treasurer, and Mr Adsit, the president and manager, own the controlling interest. Plans are now under consideration for a tramway and a Pelton wheel of 200-H. P. to run the mill.

Deer Lodge County.

Some years ago there was discovered nine miles north of Avon a vein of coal that now bids fair to prove a valuable mining proposition, says the Anaconda "Review." The seam is 7 ft. thick, and the quality is said to be excellent. It is being worked and developed by its owners, Angus McDonald and S. H. Draper.

Bob Tail.—This mine, near Elliston, is a silver property. It has one shaft that is down 35 ft. and another that is 65 ft., with about 150 ft. of tunnel

work. The vein is about 4 ft. wide. The owners are Tom Porter, Gus Thornton and Chas. Lindley.

Carbonate King.—This mine, situated three miles from Elliston, is developed by 400 ft. of tunnels and shafts. Mill runs have been made from ore from this mine that went high. They have followed five different small strata that are all leading into one main ore body, and have taken enough from these small seams to pay all expenses.

Comstock.—This mine has been developed by a shaft down 106 ft. The ore is handled at the East Helena. The mine is the property of Thornton, Porter and Wm. Wabbleton.

Dandy Jim.—This mine, near Elliston, has had more development work on it than most of the other properties in that section. There are four tunnels, which are 96, 160, 60 and 280 ft. respectively. The mine is a lead-silver proposition, and is owned by Wm. Castmore and Frank Vye.

Mammoth Gold Mining Company.—This company, according to the Anaconda "Standard," has its tunnel now in 130 ft. The vein is wide, and carries a pay-streak from 3 ft. to 5 ft., with free gold. The company is making arrangements to put up a 10-stamp mill.

Mountain View.—This mine, near Elliston, is developed by a main tunnel in about 250 ft., and from this there is a 30-ft. winze, below which there is fully 800 ft. of tunnel work. The ore is mainly lead and silver, though it carries a little gold. It is owned by Frank Taylor and William Budgeon.

Ontario.—This mine, near Elliston, is a silver and gold proposition that is now being worked steadily. A new concentrator has been erected on this property and it has proved a success. The concentrates are being shipped to Tacoma for smelting.

Telegraph Mine.—This mine is located at the head of Bryant Gulch, near Elliston, says the Anaconda "Review." It is a gold property, the ore being free at the surface, but at the depth of 30 ft. it is telluride gold. There is a mill on this property which was put up several years ago, but as the character of the ore changed, of course the mill ceased to be a success, and has been idle since. The lead is an immense one, 46 ft. wide. There are about 200 ft. of shafts on the lead and some 400 ft. of tunnels run. There is an open cut from the mill stripped off from 32 to 50 ft. from the face. The ore, like that of all similar mines, is low grade, but there are some rich spots in it. The mine has been bonded for a time. It is said that the ore can be mined very cheaply.

Jefferson County.

Elkhorn Mining Company.—This company's April statement shows the amount and source of ore broken during the month as follows: 350 level, 89 cars; 750 level, 299 cars; 850 level, 168 cars; 950 level, 178 cars; 1,050 level, 219 cars; 1,150 level, 177 cars; 1,250 level, 43 cars; 1,350 level, 525 cars; 1,450 level, 288 cars; 1,550 level, 93 cars; total, 2,079 cars, or 1,311 tons. The mill ran steadily during the month, the time lost being for the ordinary repairs, which did not require the stoppage of the pans. The work performed in April was as follows: Ore on hand April 1st, 1894, 86 tons; raised from the mine, 1,311 tons; less smelting ore, 180 tons, and waste sorted out, 161 tons, leaves 970 tons; add for salt, 148 tons; dry ore panned, 1,119 tons: pulp in the mill, 29 tons; and rough ore in stock, 56 tons, makes a total of 1,204 tons. The millwork done was: Dry tons panned, 1,119; average assay value, 38·70 oz.; average percentage salt used, 14%; average value of tailings, 3·42 oz.; average percentage saved, 92·09%. The fine silver produced was 37,954 oz.; the pure gold, 24·036 oz. The batteries were in service 27 days; the pans in service, 28 days. The estimated value of bullion shipped was $23,206; the actual returns for ore shipped were $14,094, making a total of $37,360. The current expenses, including salaries, labor and supplies, were $22,060; the balance, being profit for April, was $15,300. There is now an abundant supply of water.

Jennie.—J. T. Filcher and others are now working on this mine, they are running a tunnel on the vein.

Katie.—This mine, at Basin, is running a full force. A number of men are also employed on improvements.

May Flower Mine.—On this mine, on the Boulder River, near Boulder, a tunnel has been driven in 100 ft., and has cut three veins. One of the veins is 14 ft. wide, and contains many small bodies of ore carrying gold, copper and lead. Mr. Robert McGowan, the owner, has bonded the mine to Daniel Wortman, and the latter is now taking out considerable ore, which is shipped to Helena for treatment.

Minneapolis Mine.—P. J. Gowan and others, who own this mine, in the Cataract district, are working a small force only.

Obelisk Concentrator.—This mill, at Boulder, is running full time, the works being supplied with ore mainly from the Rose mine.

Park County.

Emigrant Gulch Placers.—Charles R. Glidden, who owns some of the richest placer ground in Emigrant gulch, says the Anaconda "Standard," recently formed a pool of several owners of adjacent claims, and he has bonded to eastern capitalists a tract of placer ground three miles long and over a mile in width. The first payment on the bond was made June 1st. A representative of the eastern syndicate visited the gulch but a few days ago, and from him it is learned that the syndicate contemplates immediate expenditure in preliminary work on the group of mines under bond. The plan contemplates the construction of a large canal from the Yellowstone near Gardiner, and the volume of water thus secured will be used for working the placer by hydraulic process.

Legal Tender Group.—A mining deal has been consummated the past week by which Messrs. Edgerton and Jewell, of Helena, as representatives of Eastern capitalists, will secure a group of gold mines in Bear gulch, says the Livingston "Enterprise." The group consists of the Legal Tender, Tip Top, Graham and Mountain Chief, and the price is $28,000. Under the terms of the agreement a deed of the property is executed and placed in escrow, the first payment of 10% of the purchase money to be paid June 20th. In the mean time the purchasers will proceed with development work upon the properties to demonstrate the extent and character of ore bodies. The remainder of the purchase money, $15 500, is to be paid in three equal installments, in 6, 12 and 18 months. This indicates a lively season in Bear as well as Crevice gulch, as the parties making the purchase have sufficient capital enlisted to proceed with development and put in machinery for treating the output.

Silver Bow County.

The great copper properties continue to ship their usual quota of ore to the smelters, the average shipments of the Boston & Montana Company to the Great Falls smelter being about 850 tons a day, says the Butte "Inter-Mountain." The Heinze smelter is running full blast on ore from the Glengarry and a large quantity purchased from leases. A great many improvements are contemplated during the present season at this excellent plant. The Liquidator concentrator, which is being operated by Mr. Heinze, has been overhauled, and many improvements for the better working of the concentrates have been added recently. The engine and boiler at the concentrator will soon be removed, and the mill will be operated from the smelter by a system of rope transmission, a new engine for this purpose being already ordered. An independent electric light plant has also been ordered and will be erected this summer.

Winters & Company have secured a lease on the east shaft of the Czarina mine and will proceed at once to actively develop that property. This property was under lease for several months to Maloney & Company, but work was abandoned owing to the large amount of water to be handled. The property is said to be rich in silver ore, and the new lessees will make an active search for the hidden treasury. The old shaft house is being torn down and will be supplanted by a new and larger one, and machinery capable of handling the water and sinking to the 500-ft. level will be erected at once.

Anaconda Mining Company.—A Butte despatch says that the output of this company for May was 13,000,000 lbs. of copper, the largest quantity ever reported in one month.

Comanche.—Howard H. Zenot, one of the original locators of this mine has brought suit in Butte against P. A. Largey for the annullment and cancellation of a deed conveying to Mr. Largey a one-fourth interest in the Comanche. The plaintiff alleges that on October 11th, 1883, he was the owner of and in possession of a half interest in this property and that the defendant by force and fraud and misrepresentation, and by threats and intimidation against the plaintiff and without consideration to him compelled him to make and execute and deliver to the defendant a bargain and sale deed conveying to him a quarter interest in the said claim. This deed the defendant recorded. In September, 1893, the plaintiff alleges he was made aware of the fraud and misrepresentation whereby the defendant had obtained the deed and a demand was made that the property be reconveyed to him.

Golden Sunlight.—It is rumored that the mines recently sold by the American Developing and Mining Company to a New York syndicate are likely to change hands again for a large sum, says the Butte "Inter-Mountain." The mineral-bearing rock closely resembles that found in the Butte copper belt, and though the Camp Golden ore carries both silver and copper, its principal value is in gold. The vein now being worked is in a hill. The ore is being taken out through a tunnel near the top of the hill, and is raised through a shaft in the tunnel. At present, operations are confined to the east side of the hill, though the employees live on the west side and have to cross over the top of the butte to their lodgings. On the west side there is a shaft and a new hoist. A boiler has recently been placed in position at this point to supply steam to operate the hoist. A tramway 800 ft. in length is now in successful operation at the mine. It is operated with two cars and is built at an angle of 70°. The ore bins at each end of the tramway are easily kept filled with ore. The force of miners employed is quite small as yet, but all that can be utilized are at work. At the present time there are 48 men on the pay-roll. Most of these are carpenters and builders. Bunk-houses for men, boarding houses and other necessary buildings are being constructed with all possible speed. Men are engaged in driving a tunnel which will tap the vein at a depth of 800 ft. This is now in 200 ft. Another gang of men is preparing a location for an air compressor. Stone masons are building a large-sized powder magazine. Laborers are employed on the wagon road from the mine to Clark's Spur, as the railway station has been named. Camp Golden lies about three miles north of the railroad, and is reached by a circuitous and steep roadway. As soon as accommodations are made the force of miners will be increased. Miners are camped all around the neighborhood awaiting orders to go to work. The first ore shipment in bulk by the new company was made May 18th. The ore wagons haul freight from the railroad spur and return with ore. Last week five carloads of the ore were shipped to Helena. Ore shipments will continue regularly, the company now being in condition to make the mine pay for all the improvements being made. The great drawback at the mines at present is the water supply. Water for domestic purposes is hauled to the mine from Jefferson Island at a cost of $5 per day. The company has secured a spring in Soap Gulch, 9,000 ft. from the mines, and it is proposed to pipe this. Thomas Starbird, formerly of the Granite Mountain mine, is in charge of operations at the mines. The company has plans perfected for a large concentrator which will be located on the slough of the Jefferson River. This will be about half a mile from the railroad. An 80-H. P. boiler is now being hauled up to the mines.

Poulin.—Another mining suit was instituted in the District Court at Butte, May 26th, the plaintiffs in the case being William J. McNamara and Kate McNamara, executrix of the estate of William McNamara and James A. Murray the defendant. The complaint in the suit alleges that in May, 1893, and long prior thereto the plaintiffs were the owners, and entitled to the possession of the Poulin lode mining claim, and that on or about June 1st, 1892, and at divers times thereafter, the defendant wrongfully and unlawfully entered upon the Poulin claim through underground works and extracted therefrom large quantities of ore and appropriated it to his own use. The minerals so removed are valued at $150,000, for which amount judgment is asked. E. B. Howell and Forbis & Forbis are attorneys for the plaintiff. The defendant is owner of the Stella mine, which adjoins the Poulin on the north.

NEVADA.

Esmeralda County.

Garfield Mining Company.—This company, in Silver Star District, has bonded the Dunlap and the Midwinter mines. According to the agreement the company must begin work at once and work continuously on the mines. It will pay to the locators 25% of all ore extracted, and within 18 months it agrees to pay $15,000 and within 6 months thereafter $15,000 more, making $30,000 in all. The 25% royalty is to be applied as part of the purchase price.

Hardscrabble.—Thirteen tons of ore from this mine yielded nearly $100 per ton in the Taylor mill at Dayton. The ledge is 5 ft. wide, says the Hawthorne "Bulletin," and seems to improve in quality as it goes down.

Humboldt County.

According to the local papers the excitement over the rich strikes at Kennedy is increasing every day. There have been over 400 locations made, and all work which has been done shows good ledges that assay well in gold. The Imperial is said to have over 4,000 tons of $30 ore uncovered.

Storey County—Comstock Lode.

Silver Hill Mining Company.—At the annual meeting of this company last week, 78,955 shares were represented, and the following officers elected: A. K. P. Harmon, president; Charles Hirshfeld, vice-president; W. E. Dean, Charles E. Eliot and C. C. Harvey, directors. D. C. Bates was re elected secretary.

Following are extracts from the latest weekly official letters from the superintendents of Comstock mining companies:

Belcher Mining Company.—On the 850 level the Crown Point and Belcher joint northeast drift is now in 30 ft. from the main north lateral drift. The face is in porphyry and quartz, the latter giving low assays. The Belcher east crosscut is out 36 ft. from the main north lateral drift. The face shows clay. We have hoisted during the week from the upper levels 17 tons of fair-grade ore.

Crown Point Mining Company.—The south drift on the 600 level from the top of the raise from the 700-ft. level is now out 183 ft. The face is in good working ground, composed of soft porphyry. The south drift on the 500 level from the shaft station is out 190 ft. The face is in porphyry and low-grade quartz. We are making good progress in cleaning out and repairing the 800 level south drift, 270 ft. having been completed to date on to within 25 ft. of the face of the drift.

Savage.—On the 1050 level, east crosscut 1, started from the north drift at a point 45 ft. from the station, was advanced to a total length of 70 ft. The face continues in ledge formation. We have finished repairing and retimbering the south drift on this level. The upraise from the north drift has been carried up 48 ft.; top is in quartz giving some fair assays. On the 1,100 level west crosscut 2 started from the face of the north drift was advanced to a total length of 32 ft.; face is in quartz and porphyry. We are repairing the main south lateral drift on this level. During the week we hoisted 26 cars of ore. Car samples average $27.75 per ton.

Segregated Belcher.—The east crosscut from the north drift on the 1,150-ft. level is in 45 ft. The face

is in soft porphyry, with small bunches of low grade quartz through it. We are still stoping north from the south raise on this level, and are saving a few tons per week of fair grade ore therefrom. The pay is about 2 ft. wide.

NEW MEXICO.

Bernalillo County.

Albemarle Mining Company.—Thomas Lowthian, of Denver; Chester Greenwood, of Rico, and N. L. Blocher, of Cochiti, have filed papers incorporating under the laws of Colorado the Albemarle Mining Company of Cochiti, with $100,000 capital stock. Ex Attorney-General C. H. Toll, of Colorado, and Henry Wood, of Rico, are in the directory. The Lone Star Mining Company and the Grand Treasure Mining Company were incorporated by the same parties with the same amount of stock.

Cochiti Mining and Milling Company.—John W. Bailey, R. W. Woodbury and Earl M. Cranston, of Denver, Colo., have incorporated this compan . with a capital stock of $1,500,000. The principal office of the company is in Denver, with a branch at Allerton. The directors are R. W. Woodbury, John W. Bailey, J. B Earle, E. M. Cranston and W. C. Wynkoop. Mr. Bailey and his associates have located 160 acres of land on the Rio Grande, practically at the mouth of White Rock canyon, and here they will establish a dam to generate electricity by water power not only for running mills for treating ores, but with a view to supply Allerton and Eagle with electricity for fuel and light.

Socorro County.

Deep Down.—This property at Mogollon, says the Silver City "Enterprise," is working 18 men in the mine and 8 at the mill. The ore bodies in the mine, it is said, improve with development. The bullion shipments amount to $),000 per month. Work was commenced last week on a shaft from the bottom of the adit level. It is now down 25 ft., and shows a large body of pay ore.

Little Fanny.—On this mine 4 men are sinking the shaft. While development is going on at the mine, repairs are being made on the tramway to the mill.

NORTH CAROLINA.

Stokes County.

Carolina Iron, Mining and Investment Company.—The discovery of an additional deposit of iron ore on this company's property is reported. The ore is said to be low in phosphorus and sulphur.

OHIO.

Muskingum Company.—A deposit of kaolin has been discovered on the Die farm, near Duncan's Falls. As far as ascertained, the deposit covers about 50 acres and the stratum is from 4 to 8 ft. thick, and is under the surface from 3 to 10 ft. The kaolin appears to be of desirable quality, being of various colors; it is now being subjected to a chemical analysis.

Portage County.

A dispatch says that great interest has been excited by the discovery of natural gas at the Nelson ledges, 12 miles northeast of Garretsville, in Portage County. A well 1,000 ft. deep showed 100 lbs. pressure, and, ignited, makes a blaze 70 ft. high. The discovery opens up an entirely new gas belt.

OREGON.

Baker County.

Bonanza Mine.—In this mine, after running 1,400 ft., the vein was recently exposed, showing some excellent ore. The new discovery is some distance below the point where the ledge was cut in the upper level.

Chicken Creek Placers.—Work has been well started on these placers, and several pipes are at work washing out the gravel. The first clean-up gave encouraging results.

Jay Gould.—The owners, J. and T. Thomas, are pushing development work rapidly. The upper tunnel is now in 75 ft. and has exposed a good body of ore. A second tunnel is in 300 ft. and will, it is expected, reach the vein at a depth of 150 ft. below the surface.

Phœnix Mine.—The new stamp mill at this mine is nearly ready to begin work.

Clackamas County.

Eagle Creek Placers.—A number of locations on Eagle Creek have been taken up by Joseph McAfee and M. B. Merritt, representing parties in Duluth, Minn., who purpose working them on a large scale.

Coos County.

Divelbiss Mines.—At this mine, in the Salmon Mountains district, the tramway is nearly completed and the the mill is expected to begin running early in June. The ore carries some free gold, besides the sulphurets, which are sent to the concentrator.

Myrtle Point Mining Company.—This company has a considerable amount of ore on the dump at its mine in the Salmon Mountains district.

Jackson County.

Golden Eagle.—At this mine, near Applegate, the prospect shaft is down 30 ft. A lot of 96 tons of ore has been worked and gave good results, running nearly $20 per ton in gold. The mine is owned by B. M. Garrett, of Ashland, and others.

Shorty Mine.—At this mine, near Jacksonville, the new five-stamp mill has been started up. There is a large quantity of ore ready for the mill.

Union County.

Gem Mine.—C. M. Donaldson has secured an option on this mine, near Sparta, and is now putting in hoisting machinery and pumps.

Minam River Placers.—Mr Fulton, representing parties in Salt Lake, Utah, has taken up 2,500 acres of placer ground on the Minam River in the Granite Mountains north of Cornucopia. He started for the ground recently with a party of miners to begin work.

Minersville Placers.—Several claims have been taken up near Minersville and McEwen, and the men who are working them are reported as doing well.

PENNSYLVANIA.

Anthracite Coal.

The committee from the Schuylkill Coal Exchange make the following return of collieries drawn to return prices of coal sold in the month of May to determine the rate of wages to be paid: Turkey Run, $2 95·5; Preston No. 3, $2 25·2; Oak Hill, $2.21 2; Monitor, $2.20·5; Furnace, $2 14 9. The average of these returns is $2.22 3, which makes the rate of wages to be paid or the last two weeks of May and first two weeks of June 9% below the $2 50 basis.

At Beaver Meadows S. Vanwickle has decided to strip the vein at Coleraine colliery.

The Delaware, Susquehanna & Schuylkill Railroad Company is preparing to double the capacity of its yards, and arrangements are being made whereby the company will be enabled to stock its coal during the dull season. These yards will, it is said, have a storage capacity of 150,000 tons.

Lehigh & Wilkes-Barre Coal Company.—This company has decided to reopen the old No. 1 Honey Brook mine, says the Wilkes-Barre "Record." Contractors will start work with 100 men, and will increase the force as the work progresses.

Lehigh Valley Coal Company.—The officials of this company announce that the fire in the Colorado Colliery has been extinguished. Several days will be required to clear the mine of gas and make it fit for exploration.

SOUTH DAKOTA.

Lawrence County.

Black Hills Gold and Silver Extraction and Mining Company.—According to the Deadwood papers this company's cyanide plant is in successful operation, treating 25 tons every 12 hours, average. As much as 32 tons in that length of time have been treated successfully. The new pulverizers are working well.

Deadwood & Delaware Smelter.—The management of this smelter is preparing to start the works.

Golden Reward Mining Company.—The chlorination works will be shut down about June 16th for 10 days, for a thorough overhauling. The mill has been worked hard for nearly a year without cessation.

TENNESSEE.

Bradley County.

Blue Springs Mining Company.—At this company's mines a new vein was recently struck showing well in lead and also carrying zinc.

Washington County.

The Embreeville Iron Company, Ltd., has been registered in London with a capital of £215,000, in £1 shares, to purchase the lands and effects of the Embreeville Freehold Land, Iron and Railway Company, Ltd. (incorporated in 1889), and to carry on the business of ironmasters and all analogous trades. The latter company owns a furnace and ore property at Embreeville, Tenn.

UTAH.

Beaver County.

Horn Silver Mining Company.—This company is now working a force of 160 men rebuilding the mill and in the mine. At the time of the fire there were 130 men employed. Forty carpenters employed are busy on the mill building, says the Salt Lake "Tribune." Rapid headway is being made in retimbering the main shaft; it is now timbered 190 ft., and is being pushed forward at the rate of 10 ft. a day. When the timbering is completed to a depth of 300 ft. a drift will be run into the mine through what is known as the "old cave." This part of the mine is now being worked through the old shaft, which will only be used in lowering timber when the drift from the main shaft is completed. The first station now in the main shaft is the 500 ft. level. Not more than 800 tons of ore a month is being shipped now, although four times that amount is being hoisted, three-fourths being stored to concentrate, and will average 40% lead and not more than 4 or 5 oz. silver, being too low a grade to ship profitably.

Juab County.

Northern Spy Mining and Milling Company.—This company has levied an assessment of 12½c. per share for the purpose of raising enough money to pay off all the claims against the company. The properties of the company will hereafter be worked by two leasers, and operations have been resumed, the first shift of men going to work on June 1st. These properties are located in the Tintic mining district. The ores contain silver, gold and lead, and will be sold in the open market by the owners of the mines, this being one of the provisions of the contract.

Salt Lake County.

The receipts of ore and bullion in Salt Lake City for the past five months were as follows:

	Bullion.	Ore.	Total.
January	$431 822	$220.650	$652,472
February	304.230	163.255	467.185
March	319,148	155,220	474.368
April	331,798	121.508	453.306
May	384,422	227,255	611.677
Totals	$1,771,420	$887,888	$2,659,308

The shipments of ore and bullion for May were as follows: Bullion, 2,776,980 lbs.; copper matte, 42,751 lbs.; silver and lead ores, 4,336,086 lbs. For the five months this year the shipments have been as follows: Bullion, 13,349,462 lbs.; copper matte, 487,716 lbs.; silver and lead ores, 32,840.400 lbs.

The shipments of ore and bullion from Salt Lake City during the week ending May 26th were: Bullion, 631,443 lbs.; silver and lead ores, 1,370,740 lbs.; total, 2,001,183 lbs.

The receipts of ore and bullion in Salt Lake City for the week ending May 31st were to the aggregate value of $126,128, of which $72,378 was in bullion and $53,750 was in ore. The receipts of Pennsylvania bullion amounted to $29,052; Hanauer bullion, $9,450; base bullion, $18,100; Ontario bullion, $14,476; gold bar, $1,300.

Mercur Gold Mining and Milling Company.—An interest in this company has just been sold by Mr. J. H. Hedges, one of the former directors of the company, for $150,000. He owned some 23,000 shares of the capital stock which have been purchased by President Dern and two of the other Eastern stockholders. Immediately upon Mr. Dern's return from the East, operations will be commenced at the mill and mine. Already the machinery and materials for the improvements have been ordered.

Ophir Consolidated Mining Company.—This company, by its agent, Daniel Harrington, has filed an application for a mineral patent for the Wild Cat Tunnel and Northern Light consolidated lode claims. The claims cover United States Lot No. 179, in Ophir mining district. There is a fraction of an acre of the claims conflicting with the Roland Lot No. 98, and with the Wild Delirium No. 88, leaving 16.16 acres applied for.

Salt Lake Onyx Company.—The stockholders of the Mexican Onyx Company have voted in favor of the changing of the name of the company to the Salt Lake Onyx Company, and also changed the articles of incorporation so as to permit of the assessment of the capital stock. At the annual meeting of the company last week the following board of directors was elected to serve during the ensuing year. O. W. Powers, H. E. Edwards, G. R Potter, C. S. Potter and D. N. Straup. Of these O. W. Powers will be president, D. N. Straup, vice-president; H. E. Edwards, treasurer, and G. R. Potter, secretary. The company has about 30 men at work. The quarries, says the Salt Lake "Herald," are now turning out great quantities of onyx.

Utah Portland Cement Company.—The kiln of this company, in Salt Lake City, has been fired. There are 1,000 barrels of the cement in the kiln, says the "Herald," and hereafter the output of the plant will be regular.

Sevier County.

Clear Creek.—The indications are that there will be considerable activity in the Clear Creek mines this summer, says the Richfield "Advocate." A mill will be erected at the Annie Laurie and one will be placed at the Grasshopper in a short time.

Sevier Mining Company.—This company, operating the Sevier mine, is adding a new bumper and four more new Frue vanners. The mill has stood idle for a long time for want of water, but now a good supply has been struck in the 800-ft. tunnel. About 25 men are at work.

Tooele County.

Little Pittsburg.—In the Little Pittsburg group, situated in the northern part of Mercur district, milling ore has been struck in a vein 25 ft. thick, says the Salt Lake "Tribune." Assays show from $6 to $7 per ton. The importance to the district of the strike is increased by the fact that the ground lies in a hitherto unexplored portion of the camp.

WASHINGTON.

Okanogan County.

Black Bear.—At this mine, near Conconully, a small force of men is engaged in cleaning out the shafts, repairing buildings and straightening up things generally. The parties who recently bonded the property have decided to commence work at once, and to develop the mine to a depth of at least 500 ft.

Hunter.—Work has been resumed on this claim, near Chelan.

McConkey.—Negotiations are pending for the sale of this group of mines in Horse Springs Coulee, near Conconully, to an English syndicate.

Stevens County.

Red Horse.—Development work is being pushed on this claim at Deep Creek. There is a well-defined vein showing galena, with considerable silver and some gold and copper.

FOREIGN MINING NEWS.

BRAZIL.

Ouro Preto Gold Mining Company.—The April report shows that during the month 3,029 tons of ore were treated in the mill, the total yield being 1,151 oz. gold; an average of 0·38 oz. per ton.

BRITISH COLUMBIA.

Nakusp-Slocan District.

Mountain Boomer.—Work has been resumed on this mine, near Nakusp, with a small force, and ore is now being taken out.

Rip Van Winkle.—On this hydraulic claim work was resumed recently. The first clean-up showed very good results.

CHILE.

The report of Consul-General J. G. Kennedy to the British Foreign office gives the following estimate of the value of the mineral exports of Chile for the year 1893: Nitrates, $39,760,000; copper, $4,320,000; manganese, $384,000; gold, $96,000; silver, $7,200,000; total, $41,760,000. The silver exports, however, include the large amount coming from the Huanchaca mines in Bolivia, shipments from which are made through the Chilean port of Antofogasta.

Last March the Chilean Government published a notice in the principal cities of Europe and the United States, inviting proposals for the purchase of the first lot of the government nitrate beds and nitrate refineries in northern Chile. The 17 different properties then advertised comprised 1,395 acres not yet worked and 678 acres more or less worked; the amount of merchantable nitrate of soda remaining in these 17 deposits was estimated by the government engineers to be 1,603,739 tons, and its market value as it now lies in the beds was appraised at $3,500,000. The bids are to be opened at Santiago on June 15th, and the sale awarded to the highest bidder. The Chilean Government has now given notice of the sale of the second lot of nitrate beds in the same district. The appraised value of these 43 properties, now advertised for sale, aggregates $9,504,809 United States gold; they contain 5,513 acres unworked and 1,408 acres partly worked, and are estimated to contain 4,634,967 tons of merchantable nitrate of soda when refined. The bids are to be opened at Santiago, October 15th, 1894. These nitrate deposits average 26 miles by railroad from the shipping ports, and the crude nitrate (caliche), averaging 40% merchantable nitrate, is appraised by the official engineers at about $2 per ton in the bed. To facilitate intending purchases, the plans and specifications of the several nitrate properties now offered for sale have been sent to the Chilean consulates in this country and in Europe. This second sale now advertised is about three times as large as the former lot.

COLOMBIA.

The exports of gold and silver from the port of Barranquilla, Republic of Colombia, for 1893 were: Gold and silver, various, $786,401; bars, $2,780,946; coins, $216,095; gold dust, $103,381. This is a total of $3,885,824, as compared with $4,342,002 in 1892.

GERMANY.

Prussia.

The production of coal in Prussia for the three months ending March 31st was 17,369,849 metric tons; an increase of 700,154 tons, or 4·2% over the first quarter of 1893. For the same period the output of brown coal (lignite) was 4,217,782 tons; a decrease of 57,524 tons, or 1·3%, from last year. The total production of mineral fuel was therefore 21,587,631 tons, showing an increase of 642,630 tons, or 3·1% over the corresponding quarter of 1893.

MEXICO.

The exports of Mexican copper to England for the four months ending April 30th were 614 tons, against 310 tons for the corresponding period last year. For the same time the exports of Mexican copper to France were 1,795 tons, against 2,530 tons in 1893.

Durango.

Candelaria.—A press dispatch from the City of Mexico says that Howard C. Walker and Richard E. Chism, accompanied by Emilio Pardo, Jr., a well-known lawyer, will shortly proceed to San Dimas to commence the concluding portion of the great Candelaria mining suit. Walker is the vice-president of the company, and represents the original litigant, Mark Birmingham. R. E. Chism was formerly superintendent of the mine, and is thoroughly acquainted with all the ancient land marks and boundaries of the property. Each side is making elaborate preparations for the final struggle which will decide the ownership of this rich property.

Jalisco.

A company to work the gold placers at Pihuamo has been organized at Guadalajara. Ventura Anaya y Aranda was chosen president. Messrs. H. A. Hilton and A. G. Higbee, mining engineers of experience in this class of work, started for Pihuamo on May 16th, and will at once begin the erection of sluices and commence active operations. The claims owned by the company, says the "Mexican Financier," comprise a zone 10 kilometers long, following the course of a river which in the driest season has an abundance of water for working requirements.

NEW BRUNSWICK.

Brunswick Antimony Company.—The mines and works of this company at Lake George were to be sold at Fredericton on June 2d, in accordance with an order of the court.

NOVA SCOTIA.

In the Molega district several leads of considerable value are said to have been discovered, and one vein of 10 in., from which several tons of quartz have been taken, has given indications which prove it to be high class and lead the owners of the mine to claim that it is as rich as any which has ever been discovered in this district.

At the Crow's Nest mine, in the Sherbrooke district the proprietors have for some time been driving a crosscut tunnel to prove a new lead of ore; they have just cut a lead of 7 ft. and have taken out a number of cars of quartz, and report that it is of good appearance and quality.

Coal.—The new bank and self-dumping cages at the Caledonia colliery belonging to the Dominion Coal Company are now at work, and are giving satisfaction, says the "Canadian Colliery Guardian."

Gold.—At present there is quite a boom in gold mining according to the "Guardian," in the neighborhood of the Richardson mine, and it is reported that 176 areas have been taken up around that place.

Cape Breton.

Marble Mountain Company.—This company has been organized to develop the extensive deposits of marble at Marble Mountain, on the Bras d'Or Lake. The following directors have been chosen: Rod Macdonald, Geo. E. Francklyn, Robie Uniacke, Jas. B. Hattie, Ald. Mosher, Henry Sanders and A. Hobrecker. At a subsequent meeting of directors the following officers were elected: President, Rod Macdonald; vice-president, Geo. E. Francklyn; secretary-treasurer, Geo. Hattie. The capital required to develop the property and carry on the work of quarrying marble has been subscribed, and work is to be carried on under the supervision of D. MacLachlan, manager.

Lunenburg County.

Lincoln Gold Mining and Milling Company.—The "Canadian Colliery Guardian" says this company, with head office at Boston and works in this county, has just issued its prospectus. The directors are: President, Benj. Heath, Boston; vice-president, Wm. E. Barrett, and secretary and treasurer, Benj. L. Heath, of Melrose, Mass.; manager of works, Don C. Butterfield, New York; and Richard McDonald, of Boston. The company has purchased property east of the Victor mine, and south of the Wade tract in the Gold River district. The main lead on the property is the "Captain," which is at present being worked at the Victor mine. A shaft has been sunk to this vein on the western side and some quartz taken out, but it is understood that no milling has yet been done. The parties interested say that it shows $20 per ton. The company is to be capitalized at $250,000, and $12,500 is wanted at once to equip the mine with plant and machinery equal to a capacity of a 10-stamp mill. With this amount of outlay the promoters hope to mill 15 tons per day.

ONTARIO.

Michipicoten Island.—Capt. Peter Pascoe, of Republic, Mich., who recently made an examination, has, it is understood, made a report in favor of unwatering the mines there and making a thorough exploration for copper.

SOUTH AFRICA.

Cape Colony.

The customs department gives the following values for the exports for three years past. This includes nearly all those of the South African colonies, as most of them pass through the Cape Colony to a shipping port:

	1891.	1892.	1893.
Merchandise.....	£8,153,398	£7,679,044	£7,506,650
Gold.....	2,781,576	4,095,512	5,259,120
Total.....	£10,934,974	£11,774,556	£12,765,770

It will be seen that the increase in the total was wholly in gold, the exports of produce showing an an actual decrease, though this was not so much in quantity as in value. Imports were valued at £7,518,437 in 1891, at £8,691,017 in 1892 and at £10,760,556 in 1893.

Transvaal.

African Gold Recovery Company.—The return for April shows that the total amount saved by this company's cyanide process from the tailings of the Transvaal mines was 56,500 oz. gold in April and 215,600 oz. for the four months ending April 30th; these amounts comparing with 20,050 oz. in April and 73,913 oz. for the four months in 1893.

Transvaal Coal Trust.—The steady increase in mining work in the Witwatersrand has had a favorable influence on this company's mines. For the company's year ending September 30th, 1893, the total output of coal was 223,533 tons. For the half year ending March 31st, 1894, the production was 119,807 tons. This, it is expected, will be increased during the current half-year, as many improvements have been made at the mines.

SPAIN.

(From our Special Correspondent.)

The exports of ores from Spain for the three months to March 31st have been: Iron and manganiferous ores, 1,244,106 tons; copper ores, 114,482 tons; lead ores, 3,493 tons; zinc ores, 9,288 tons.

LATE NEWS.

The United States cruiser "Minneapolis," sister ship to the "Columbia," has returned from a sea trial after making a record of 21·75 knots.

The Bald Butte Mining Company, of Helena, Mont., on June 2d declared dividend No. 26, of 10%, amounting to $25,000. This makes the total amount paid in dividends to date $220,000.

William Dwight Whitney, professor of Oriental languages and Literature at Yale College, died at New Haven, Conn., on June 7th, aged 67 years. He was the greatest of American philologists and had received the highest honors and distinctions from foreign scientific bodies. With his brother, J. D. Whitney, and J. W. Foster, he had charge of the government survey of the Lake Superior region in 1849. He also took part in the Hayden exploring expedition of Colorado in 1873. He wrote numerous works on the study of language and was a most important contributor to the literature of Sanskrit studies.

The annual meeting of the Tinned Plate Manufacturers' Association was held in Pittsburg, June 6th. President W. C. Cronemeyer was re-elected, Thomas Neidringhaus was elected vice-president, and John Jarrett was re-elected secretary-treasurer. The scale for tin plate mills adopted by the Amalgamated Association was received and referred to a committee. The scale is practically the same as the one which expires with the end of this month. No time has been set for a conference on either the tin plate or the sheet scale. The demands for an increase in the sheet scale are not likely to be granted, and the manufacturers are considering a rearrangement which contemplates some reductions. There was a long discussion on the scale, which brought out these points.

Rodman M. Price, ex-Governor of New Jersey, died at Oakland, N. J., on June 7th, aged 78 years. He was United States Navy agent for the Pacific Coast in 1848, and was with Commodore Sloat when the American flag was raised at Monterey, Cal., and that country was taken possession of in the name of the United States. He was appointed Prefect, becoming the first federal officer of California under this government. He took part in the convention which formed the constitution of California, and later moved to San Francisco. He returned to New Jersey in 1850, and later served one term in Congress and one as Governor of the State. He was engaged in several mining adventures and land speculations in California and elsewhere, which did not all turn out well, and his later years were clouded by financial trouble.

The summer meeting of the American Society of Mechanical Engineers began in Montreal, Tuesday, June 5th. At the opening session addresses of welcome were made in behalf of the local committee, of the city authorities, of the Canadian Society of Civil Engineers, and of the Association of Stationary Engineers, to all of which President Eckley B. Coxe responded in appropriate terms. Mr. Coxe also went on to speak at some length of the training of engineers.

On the second day a business meeting was held in the morning, at which a number of papers were read and discussed. In the afternoon the members made a trip by boat to Lachine and the St. Lawrence Rapids, and in the evening they attended a reception given in their honor by Sir Donald Smith.

On the third day two business sessions were held for the reading of papers and discussion of topical questions.

The Stillaguamish & Sultan Mining Company, owning mines near Seattle, Wash., is being floated in England with a capital of $3,000,000 in shares of $50 each. It is offering 4,500 of such full paid shares at £2, or say $10, each "for development." At this price the property would come to $600,000. We have received a number of prospectuses, reports, etc., of this company. Some of these reports indulge in the familiar estimates of value of ore in veins that are known only by their outcrops, and the so-called experts "figure out" fabulous values. We have also private and thoroughly well-informed advices which confirm what any expert would conclude from the glittering generalities in the prospectus and reports, namely, that the property is an undeveloped prospect, with fair possibilities, but little demonstrated value. At any such price as $600,000 it is vastly overvalued, and the amount of working capital, $45,000, now being raised, though probably sufficient to prospect and determine whether the property possesses the ore necessary to justify building a mill and incurring other heavy expenses, would be wholly insufficient to equip the property with a plant that could turn out dividends if it had the ore. We hope the property may prove of value, but those who are taking all the chances and who are paying for the prospecting are doing so at what mining men would consider far too high a figure.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, June 8.

Statement of shipments of anthracite coal (approximated) for week ending June 2d, 1894, compared with the corresponding period last year:

	1894. Tons.	1893. Tons.	Difference.
Wyoming region	582,459	476,871	Inc. 105,628
Lehigh region	117,026	117,777	Dec. 751
Schuylkill region	254,105	230,472	Inc. 23,633
Totals	953,630	825,120	Inc. 128,510
Total for year to date.	14,301,792	17,288,192	Dec. 2,986,400

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending June 2d and year from January 1st:

Shipped East and North:	1894. Week.	1894. Year.	1893. Year.
Phila. & Erie R. R.	641	25,523	49,568
Cumberland, Md.	.....	1,257,954	1,678 711
Barclay, Pa.	165	9,543	27,616
Broad Top, Pa.	.....	122,371	316,136
Clearfield, Pa.	744	1,122,436	1,839,186
Allegheny, Pa.	484	473,750	568,974
Beech Creek, Pa.	425	835,899	719,247
Pocahontas Flat Top	.....	1,280,391	1,270 267
Kanawha, W. Va.	*24,461	963,406	1,368,747
Totals	26,920	6,091,273	7,838,352

* Week ending May 21st.

Shipped West:	1894. Week.	1894. Year.	1893 Year.
Pittsburg, Pa.	11,668	521,917	558.788
Westmoreland, Pa.	7,626	533,580	882.517
Monongahela, Pa.	291	163,890	291.810
Totals	19,585	1,219,387	1,733,115
Grand totals.	46,505	7,310,660	9,571,467

PRODUCTION OF COKE on line of Pennsylvania R. R. for the week ending June 2d, 1894, and year from January 1st, in tons of 2,000 lbs.: Week, 18,866 tons: year, 1,151,477 tons; to corresponding date in 1892. 2,325,001 tons.

Anthracite.

As usual after an advance in prices has taken place, great quietude prevails in the anthracite coal market. Nothing else was to be expected.

There is practically no new business doing, the movement of coal being simply deliveries on May sales, and even of that there is but little that affects the market here. In the East, however, a very good business has been done; the dealers there have been stocking up in order to take advantage of the cheap ocean freight rates, and as well as of the low prices at which anthracite was selling a fortnight ago. Operators declare that all the tonnage now mined is being placed, and that coal is not accumulating. There being no new business to be had, it cannot be said that prices are either strong or weak. One sales-agent states more or less triumphantly that all orders given this week were to be placed at full June rates, but such orders have been very small, not exceeding 100 tons.

Owing, to some extent, to the soft coal strike, egg and broken have been in fair demand, and some of the Lehigh coals are somewhat scarce. Stove and chestnut are very dull.

The Philadelphia & Reading Coal and Iron Company announces the following schedule of prices at New York ports, subject to the usual commissions:

	Broken.	Egg.	Stove.	Chest.
Hard white ash	$3.75	$3.75	$4.00	$4.00
Free white ash	3.65	3.65	4 00	4.00
Shamokin	.....	3.85	4.25	4 00
Schuylkill red ash	.....	4.00	4.50	4.25
Lorberry	.....	4.00	4.50	4.25
Lykens Valley	4.75	5.25	5.50	4.75

The Reading Railroad reports that its coal shipment (estimated) for last week, ending June 2d, was 182,000 tons, of which 25,000 tons were sent to Port Richmond and 20,000 tons were sent to New York waters.

NOTES OF THE WEEK.

The Wilkes-Barre & Eastern road, from Wilkes-Barre, was officially opened on June 5th. This is the new line of the New York, Susquehanna & Western.

The office of the Bureau of Anthracite Coal Statistics has been removed from 316 Walnut street to the Heed Building, 1215 Filbert street, Philadelphia.

Bituminous.

There is no change in the condition of the soft coal trade. With the strike still unsettled there is practically no such thing as a market.

There has been an increase over last week in the amount of coal reaching tidewater. This comes from various sources, not the least important of which are the small individual mines whose aggregate tonnage amounts to a considerable quantity.

It is still very difficult to get coal to the shipping ports over the line of the Pennsylvania Railroad. Over the Baltimore & Ohio not much trouble is experienced.

We learn that the coal which was recently seized by the railroads is being billed at increased prices.

It is practically impossible to say at exactly how high soft coal has been sold of late. Sensational reports of exceedingly high figures are numerous, but in almost all cases they cannot be verified.

People who have coal to sell are finding great difficulty in getting $5@$5.50, which are quoted as the ruling prices.

At this writing there is little change to report of the strike. The men in some regions have continued their worse than foolish deeds of violence. Operators and men are both apparently as firm as ever in their determination not to yield. A conference will be held on June 9th and it is likely that as a result of it some of the regions will return to work, thus destroying whatever chances of success the men may have entertained. Some of the mines along the West Virginia Central are importing negro miners and some of the Clearfield operators will do likewise.

Ocean freight rates are unchanged. We quote as follows from Philadelphia: To Boston, Salem, Portland, Portsmouth, Bath, Gardiner and Bangor, 60c.; Providence, New Bedford, New Haven, Bridgeport and Allyn's Point, 55c.; Wareham, 75c.; Lynn and Newburyport, 65@70c.; Dover, $1 and towages; Saco, 75c. and towages.

NOTES OF THE WEEK.

The Binghamton, Pennsylvania & Southern Railroad, recently incorporated with a capital of $80[illegible]-000, will extend south from Binghamton, N. Y., to a point in Susquehanna County, Pa., on the State line, thence southwest to Wyalusing to connect with the Lehigh Valley.

The Norfolk & Western Railroad shipped 208,000 tons of coal from Norfolk, Va., during May, being the largest month's shipments in the history of the road.

The Norfolk & Western Railroad Company reports its earnings for April at $748,298, a decrease of $179,717, or 19%, as compared with April, 1893. The expenses were $584,927, and the net earnings $163,371, showing a decrease from last year of $124,-922, or 43%. For the four months ending April 30th the earnings were $3,006,195; expenses, $2,312,624; net earnings, $693 571. The gross earnings show a decrease of 9%, and the net earnings of 15%, from 1893.

Buffalo.

June 7.

(From our Special Correspondent.)

Anthracite coal is active for home trade, manufacturers and vessel men, also from near by points. There are no special incidents connected with the trade to report; except that the contract for 5,000 net tons, screened and delivered to the jail, penitentiary, almshouse and arsenals in Buffalo was given to Mr. A. G. Sherman at his bid of $3.57 for grate and $3 70 for egg, stove and chestnut. His competitors' offers ranged from $3.74 to $3.83 for grate and $3.85 to $4.06 for egg, stove and chestnut.

Bituminous coal trade is paralyzed for want of supplies. Manufacturers and vessel men are using anthracite to a large extent now, but many vessels are laid up, for at the low rates of freight up and down the lakes owners cannot afford to use that fuel.

From June 1st and until further notice, the prices of anthracite coal at Buffalo are as follows: On cars at Buffalo or Suspension Bridge, per 2,240 lbs.: grate, $4.40; egg, stove and chestnut, $4.65; free on board vessels at Buffalo per 2,240 lbs.: grate, $4.70; egg, stove and chestnut, $4.95. At retail per 2,000 lbs., delivered within city limits: grate, $5; egg, stove and chestnut, $5.25; and pea, $4.

The shipments of coal from Buffalo by lake from May 27th to June 2d, both days inclusive, were 71,047 net tons, distributed as follows: 35,757 tons to Chicago; 20,650 to Milwaukee; 2,000 to Duluth; 2,400 to Toledo; 600 to Sault Ste. Marie; 200 to Alpena; 2,000 to Superior; 700 to Port Huron; 600 to Benton Harbor; 1,250 to Racine; 800 to Kenosha; 750 to Saginaw; 3,000 to Green Bay, and 340 to Sand Beach. The rates of freight were: 45c. to Chicago, Saginaw, Racine and Kenosha; 50c. to Benton Harbor; 40c. to Milwaukee, Green Bay and Sheboygan; 25c. to Toledo; 15c. to Duluth and Superior; 40c. to Alpena and Sault Ste. Marie; 50c. to Sand Beach, and 30c. to Port Huron.

The following statistics show the coal movement at the port of Buffalo to June 1st this year, with comparisons of previous years: Receipts and shipments by railroads not reported by request. Receipts by lake this season, none. Shipments by lake from opening of navigation to June 1st, 341,744 net tons, as compared with 541,479 tons in 1893 and 404,-370 tons in 1892. The receipts by canal this season to June 1st, no net tons, as compared with 4,560 tons in 1893 and 143 tons in 1892. The shipments by canal this season to June 1st, 461 net tons, as compared with 6,296 tons in 1893 and 6,732 tons in 1892.

Lake freights from opening of navigation to June 1st: 25@45c. to Chicago, 25@40c. to Milwaukee, 25@15c. to Duluth and Lake Superior ports, 40c. to Green Bay, 30@35c. to Racine, 35c. to Sheboygan and Saginaw and 25c. to Toledo, Detroit and Bay City. A year since on May 31st the rates were 60c. to Chicago, 55c. to Milwaukee, 30c. to Duluth and Lake Superior ports, 55c. to Green Bay, 30c to Toledo and Detroit, 35c. to Bay City, 60c. to Racine, and 40c. to Saginaw. The shipments by lake thus far this season show a decrease of 199,735 net tons as compared with 1893, and a decrease of 52,626 net tons as compared with 1892. The distribution of coal by lake from opening of navigation to June 1st was as follows: To Chicago, 152,035 tons; to Milwaukee, 81,434 tons; to Duluth, 27,815 tons; to West Superior, 34,050 tons; to Gladstone, 6,100 tons; to Toledo, 19,300 tons; to Racine, 6,350 tons; to Kenosha, 800 tons; to Green Bay, 1,150 tons; to Detroit, 400 tons; to Bay City, 650 tons; to Superior, 3,700 tons; to Port Huron, 2,000 tons; to Alpena, 200 tons; to Manitowoc, 2,080 tons; to Benton Harbor, 600 tons; to Sand Beach, 600 tons; to Sault Ste. Marie, 1,900 tons; to Ludington, 1,150 tons; to Cheybogan, 2,190 tons; to Owen Sound, 650 tons; to St. Clair, 250 tons, and Hamilton (Canada), 380 tons.

Chicago.

June 6.

(From our Special Correspondent.)

Anthracite.—Prices of anthracite for Chicago and vicinity have gone up 25 cents per ton, this advance being made by the Anthracite sales-agents at their meeting last week. This advance has created considerable comment in this vicinity, and many think that it was wholly unnecessary. Still the fact is, that hard coal is now taking the place of soft coal in many instances, on account of the scarcity of soft coal due to the strike. The hard coal market for Chicago has shown a slight improvement, the sales for the week having resulted in a fair week's business. The increase in price has held buyers back to some extent, but should the prices be held too firmly they will soon come into the market.

Bituminous coal is fast becoming a rarity in Chicago and vicinity. Numerous concerns have been compelled to use hard coal, while others have shut down entirely, as they could not afford to manufacture at hard coal prices. The river docks are almost barren of coal, and this will soon result in the entire suspension of the marine business. Some of the vessel companies are contemplating using hard coal. All along the Lake Superior ports no coal is to be had, the stocks at those places having been all sold. A small quantity of coal is still coming to Chicago over the Big Four line from Cincinnati, and some is coming from Kentucky. There is some complaint of the railroads confiscating coal. The fact is that most of the roads have quite a fair supply on hand yet, and a number of them have sources of supply that can maintain them for an indefinite period. Consumers who are being furnished on contract are not having much difficulty in obtaining coal, as dealers generally are looking out for them. The price of soft coal runs from $3.75 to $4.50, the latter price being made where very small quantities are desired.

Coke.—Since the strike in the Connellsville coke region shut off the supply of coke, consumers in this market have had to depend on the West Virginia and Kentucky products, and with the result that these cokes have found much favor. This may result in opening up a market for these cokes, and thereby decreasing that of the Connellsville material. Coke is now quoted at $5 per ton.

Pittsburg.

June 7.

(From our Special Correspondent.)

Coal.—The situation shows little change. There are a great many miners idle and a good many working at various places; these idle ones are becoming dissatisfied and may do something desperate before long. Coal-owners are not showing any particular anxiety to pay an advance; most of them have liberal stocks in the lower markets on which they are getting satisfactory prices. Most of the mines on the upper Monongahela are turning out a good deal of coal, and the new State Line road is almost blocked with coal trains; many of the strikers from the coke regions are working in these mines. The operators are getting big prices for coal and are paying good wages. It is being unloaded daily and shipped to Chicago. Coal has been advanced $2 per ton and is now retailing at $3.50. The strike is causing the railroads to abandon local freight trains and shorten the time of local passenger trains.

Connellsville Coke.—The coke business is still in a very unsettled condition; at the same time there is a good deal of coke made. The cokers are going to work daily; there are over 30 plants in operation and about 3,200 ovens making coke, a large gain from the preceding week. Many of the ovens are run on 72 hour coke. In three days shipments reached 715 cars. At the Tyrone plant of Jones & Laughlin, near Broadford, most of the old men have returned to work and all are expected to stay. The striking coke workers have gone into camp on leased ground near the Painter plant of the McClure company, and propose to remain there until they get the men at work there out or until they themselves are removed. The plant made a full day's run, shipping 18 cars of coke, being an increase of two cars over any day since the plant started. The coke producers report steady gains of men at most of the plants; many of them have all they want. Rioting continues at many points.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, June 8, 1894.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending June 9, 1893. F'ces.	Tons.	Week ending June 8, 1894. F'ces.	Tons.	From Jan., '93. Tons.	From Jan., '94. Tons.
Anthracite.	69	33,450	34	17,430	765,617	371,289
Coke.	147	142,230	71	85,670	3,124,227	2,088,886
Charcoal	37	8,580	19	4,235	250,825	92,403
Totals	253	184,260	124	107,335	4,100,669	2,552,558

Pig Iron.—So far as the local market is concerned there has been no change either in the volume of business or as to prices. The demand here shows no improvement. Consumers continue to buy in small lots according as they need supplies. Prices are reported firmer, but are no higher to-day than they have ruled during the past few weeks.

From other centers, however, we hear more en-

couraging reports. Signs point to an increase in consumption; and owing to the curtailed production prices are slightly higher for forge and foundry as well as for Bessemer pig. It must be borne in mind that when an improvement is reported it does not necessarily mean that the market is in a flourishing condition; it will stand a considerable improvement from its present state and still be far from booming. Quotations at tidewater are as follows: Northern brands, No 1, $12 50@$13; No. 2, $11.50@$12.50; gray forge $10.50@$11. Southern irons, No. 1, $12@$13, No. 2, $11@$11.50; No. 1 soft F., $11@$11.50; No. 2 soft F., $10 50@$11.25. Scotch irons are quoted: Coltness, $21 50@$22; Eglinton, $19.50@$20; Summerlee, $20.50@$21.50.

Billets and Rods.—Prices continue fairly firm, although it is expected that as soon as the coke strike is settled they will decline somewhat. Very little business is reported. Quotations are nominally: Domestic billets, $19@$19 50; wire rods, domestic, $27@$27.50; foreign rods, $39@$40.

Manufactured Iron and Steel.—A sharp, though slight advance in prices has taken place in this market. Business, however, continues slow. We quote this week: Angles, 1·30@1·40c.; axles, scrap, 1·40@1·60c. delivered; steel, 1·40@1·55c.; bars, common, 1·15@1·30c.; refined, 1·25@1·40c. on dock; beams, up to 15 in., 1·40@1·50c.; channels, 1·40@1·50c. on dock; steel hoops, 1·45@1·75c., delivered; links and pins, 1·40@1·65c.; plates, flange, 1·60c.@1·80c.; fire-box, 1·80@2·10c.; marine, 2·45@2·70c.; sheared, 1·80c.; shell, 1·40@1·60c.; tank, 1·30@1·40c.; universal mill, 1·25@1·50c.; tees, 1·50@1·60c., all on dock.

Merchant Steel.—Some improvement in the demand has been experienced during the week, but prices are without change and we quote: Tool steel, 5·75@6·25c.; tire steel, 1·60@1·75c.; toe calk, 1·70@1·90c.; Bessemer machinery, 1·25@1·50c.; open-hearth machinery, 1·90@2c.; open-hearth carriage spring, 1·90@2c.; crucible spring, 3·50@3·75c.

Old Material.—This market is very quiet. We quote nominally as follows: Old steel rails, $9.50@$9.75; old iron tees, $10.50@$11 50 per ton; New York railroad scrap, $115.0@$12 per ton delivered at mill, and yard scrap at $10; wrought turnings, delivered at mill, $8 50@$9; No. 1 wrought scrap at $9.50@$10 50 from yard, and machinery cast scrap $9@$10; old wrought tubes and pipe, $6.50@$7; old car wheel, $9 50@$10 50 New York; cast borings, $6@$6.50 delivered at mill.

Rail Fastenings.—We do not hear of any business doing in track material. Quotations are as follows: Fish and angle plates, 1·20@1·40c. at mill; spikes, 1·50@1·75c.; bolts and square nuts, 2@2·25c.; hexagonal nuts, 2·10@2·30c., delivered.

Spiegeleisen and Ferromanganese.—This market continues quiet. Quotations remain nominally: Spiegeleisen, 10@12%, $21@$22.20%, $25@$26. Ferromanganese, $51.50@$53.

Steel Rails.—There is no business of any consequence doing in standard sections. Prices are still $24 at mill, or $24.80 tidewater for standard sections. Girder rails are quoted at $21@$24 at mill.

NOTES OF THE WEEK.

A despatch from Reading, Pa., says that the Temple Furnace, in that city, will be blown out early next week on account of the scarcity of coke. Nearly all the furnaces in the valley that are in blast are using anthracite coal exclusively. The Keystone, of Reading, is using coke, but its supply will last but a few days and it may also be compelled to shut down then.

The deed conveying the property of Robert H. Coleman and wife to the Lackawanna Iron and Steel Company was entered in the Recorder's office at Lebanon, Pa., on June 7th. The sum paid was $2,509,375. Officials of the company visited the various furnaces, etc., this week, to take an account of stock. It is said to be the purpose of the company to start up the Colebrook furnaces as soon as the coke strike is over.

The new freight rates from Pittsburg, Pa., to points east, to take effect on June 15th, are as follows:

From Pittsburg and points taking Pitsburg rates to:	Group 1. Per ton.	Group 2. Per ton.
Passaic, N. J	$2.40	$2.70
Paterson, N. J	2.40	2.70
Binghamton, N. Y	2.00	2.30
Carbondale, Pa	2.00	2.30
Elmira, N. Y	2.00	2.20
Hornellsville, N. Y	1.80	2.00
Wellsville, N. Y	1.80	2.00
Harrisburg, Pa	1.80	2.10
Philadelphia, Pa	2.00	2.30
New York City, N. Y	2.40	2.70
Boston, Mass	2.80	3.10
Albany, N. Y	2.25	2.70
Utica, N. Y	2.20	2.60
Baltimore, Md	1.80	2.10
Syracuse, N. Y	2.00	2.20
Buffalo, N. Y	1.40	1.40
Rochester, N. Y	1.80	2.00

Rates under head of Group 1 will apply on pig iron, mill cinder and scale. Rates shown under head of Group 2 will apply on iron or steel billets and blooms, borings, chain iron, crop ends, ingots, muck or puddle bars, old car wheel and axles, old rails, scrap iron, scrap steel, scrap tin, slabs, unfinished, and wire rods per gross ton, and on cast iron pipe and ingot molds per net ton, in carloads of 12 tons and over. The rates on billets, blooms and slabs will apply only on unfinished material which can be transported in open cars without damage from exposure to weather.

A plan, which embodies two methods for the adjustment of the affairs of the Maryland and Pennsylvania steel companies, has been concurred in by the creditors of those companies and will soon be submitted to the stockholders. One of these methods is known as the amicable plan, and the other the judicial reorganization plan. The first contemplates a settlement between the creditors of the company on a mutually accepted basis. Should this fail, the second plan would throw the properties into court and a settlement would be made by a judicial sale under foreclosure of existing mortgage and liens. The amicable plan provides that the creditors shall be paid 40% of the indebtedness in cash and 60% in bonds on the joint properties, and 15% in stock or scrip of the Pennsylvania Steel Company. The stockholders of the Pennsylvania company are to surrender one-half of $4,700,000 present capital, and of the amount surrendered $1.500,000 is to be returned to subscribers of a like amount of preferred stock at par. The bonds to be issued under the agreement are to be subject to existing mortgages and other liens. It is believed that this plan for an amicable adjustment will be carried out.

Boston. June 8.

(Special Report of Rogers, Brown & Co.)

The foundry business throughout New England continues very quiet, with very little of an encouraging nature in sight.

The miners' strike, together with the floods in Pennsylvania, has materially cut down the production of pig iron, and prices are much firmer than a week ago. The firmness of the market in connection with the advance in freight rates, which will go into effect about the 15th of the current month, has stimulated quite a buying movement in this territory, and has caused quite a scarcity of some of the leading grades and brands, a number of which have already been withdrawn from the market.

We quote for cash delivered Boston: For immediate shipments: Alabama No. 1 Foundry, $12.50@$13; Alabama No. 2 Foundry and No 1 Soft, $11 50@$12; Alabama No. 3 Foundry and No. 2 Soft, $11@$11.50; Alabama C. C. car wheel, $18 75@$19.25; Strong L. S. Coke Iron No. 1 Foundry, $14@$14.50; Lake Superior charcoal car wheel, $17 50@$18; American Scotch (Northern) No. 1, $14@$14.50.

Buffalo. June 7.

(Special Report of Rogers, Brown & Co.)

The improved demand noted during the past two weeks continues and is now well defined. Prices are firm and are so recognized by buyers who have tested the market. A large number of furnaces formerly on foundry grades will resume on Bessemer as soon as fuel can be obtained. The Lake Superior charcoal market shows considerable activity with numerous inquiries. In the face of the present depression the conditions surrounding pig iron surely give cause for encouragement. We quote on the cash basis, f. o. b. cars Buffalo: No. 1 foundry, strong coke iron, Lake Superior ore, $11.50; No. 2 foundry, strong coke iron, Lake Superior ore, $11; Ohio strong softener No 1, $11.50; Ohio strong soft, No. 2, $11; Jackson County silvery No. 1, $15.50@$16 50; Lake Superior charcoal, $14 25; Tennessee charcoal, $15.50; Southern soft No. 1, $11; Southern soft No. 2, $10.50, Alabama car-wheel, $16@$17.50; Hanging Rock charcoal, $18.50.

Chicago. June 6.

[From our Special Correspondent.]

The prevailing idea that the scarcity of coke and coal will soon cause a general cessation of work among the furnaces, mills, etc., has created much of the present condition in the Chicago iron market. Orders are coming in more frequently and, as a rule, for much larger quantities in all classes of iron. The week shows a greater tonnage of sales than any other week for a year past, and the probability is that next week will even surpass this. A new special commodity tariff on pig iron, billets, etc., has been adopted by the Central Traffic Association, and will go into effect June 15th. The rates on pig iron will be on a basis of $4 a ton, and on billets, etc., $4.55 a ton, Chicago to New York. To Boston pig iron rates will be $4.40; to Philadelphia, $3 60; to Baltimore, $3.40; to Albany, $3 84; to Utica, $3.60; to Syracuse, $3.20; to Buffalo, $2.40; to Cleveland, $1.80; to Pittsburg, $2.40. The rates on billets, blooms, etc., Chicago to Boston, will be $4.95; to Philadelphia, $4.15; to Baltimore, $3 95; to Buffalo, $2.75; to Cleveland, $2.15; to Pittsburg, $2.75.

Pig Iron.—Last week's sales of pig iron were noticeably large, but this week shows even a greater combined tonnage. Sales are very numerous of carload lots, and a number of orders from 500 tons to 2,000 tons are noted. An order for 5,000 tons Northern iron is now under consideration by one of the large firms, and will undoubtedly be closed this or next week. Consumers are beginning to realize that the price of pig iron will soon rise. Indications of an increase in prices are now very noticeable in the decreasing production arising from want of fuel, and the fact that the stocks on hand at the furnaces have not been so low in years. There is a rumor prevailing that on June 15th freight rates on the Southern roads will be advanced 15 cents. Should this be true Southern iron will have a further setback and the Northern material will advance proportionately. The Iroquois furnace at South Chicago remains banked and others are likely to follow within a few days. Dealers are now refusing orders at prices that they would have grasped at eagerly a few weeks ago. Prices have not yet advanced any but they show a firmness that may shortly lead to it. Many people have been for years under the impression that Connellsville coke was the only suitable coke for the making of pig iron, but that impression has had a decided change of late from the fact that practically all the coke used here at present is from West Virginia and Kentucky, and these cokes have answered the purpose admirably in nearly every ease. Prices are, per gross ton f. o. b. Chicago: Lake Superior charcoal, $15@$15.50; Lake Superior coke No. 1, $11.50@$11.75; No. 2, $10.50@10.75; No. 3, $10.25@$10.50; Jackson County silveries, $14.50@$15; Southern coke, foundry No. 1, $10 75@$11; No. 2, $10.25@$10.50; No 3, $9.75@$10; Southern coke soft, No 1, $10@$19 25; No. 2, $9.75@$10; Southern car-wheel iron, $17 50@$18; Southern silveries No. 1, $11.75@$12; No. 2, $11.25@$11.50; Tennessee charcoal No. 1, $14@$14.50; Bessemer, $11.50@$11.75; Ohio strong softeners, $12 75@$13.25.

Structural Material.—Business has improved slightly, beams and channels meeting with quite a good tonnage in small orders. Quotations are f. o. b. Chicago: Angles, 1·40@1·45c.; tees, 1·65@1·70c.; universal plates, 1·40@1·45c.; beams and channels, 1·50c.

Plates.—The plate market shows quite an improvement, and a better business has been transacted during the week than for a long time. Prices are firmer. Flange steel is quoted at 1·70@1·80c.; best firebox steel, 3·75@4·25c.; tank steel, 1·35@1·45c.; boiler tubes, 75% discount.

Merchant Steel.—Consumers, who are evidently looking forward to a decreased production owing to the scarcity of fuel, and the increased prices that would follow, are now buying very freely. The orders are generally for increased quantities and for quick delivery. Mill agents refuse to accept orders on present prices for future delivery. Quotations are, carload lots: Smooth finished machinery, 1·80@1·90c.; tire steel, 1·70@1·80c.; ordinary Bessemer bars, 1·40@1·50c.; toe calks, 2·05@2·15c.; special brand tool steel, 12@20c., crucible spring, 3·40@3·65c.; tool steel 6½c. and upward.

Galvanized Sheet Iron.—Mill and warehouse business has increased materially with the week. Quotations are 75, 10 and 10% mill shipments.

Black Sheet Iron.—Quite a good week's business has been transacted by mills that are accepting orders at present prices. There a number of mills that are stopping out of the market rather than furnish material at prevailing low prices. Quotations are firm at 2·35@2·40c. f. o. b. Chicago.

Bar Iron shows signs of an improvement with the week, though many orders for future delivery have been refused on account of the uncertainty relative to the price of billets. A few concerns are closed for want of fuel. Quotations are 1·15c. for bar iron, and for steel 1·30c.

Billets.—Inquiries for shipment during July and August are numerous. The steel works product for June is already sold. The company are still adverse to taking orders for delivery after July 1st at present prices, which are $19.50@$20, Chicago.

Steel Rails.—Quite a good business is being done in sales of small lots from a hundred to a thousand tons. Prices are $25@$27.

Nails.—Quite a satisfactory week's business is observed in both wire and steel cut nails. Prices are from 1·05c. to 1·15c.

Old Rails and Wheels.—Both iron and steel rails have been quiet and no sales of importance are noted. Car wheels are quiet at $9.50@10.25. Iron rails are quoted $9.50@$10, and steel rails $6.50@$9, according to length.

Scrap.—A few sales of very small quantities have constituted the business of the week. Prices are: Forge, $8.50@$9. Cast borings, $3.50@$4; wrought turnings, $4.50@$5; axle turnings, $6@$6.50; mixed steel, $5@$5.50; tires, $12.50@$13; iron axles, $14@$14.50.

Pittsburg. June 7.

(From our Special Correspondent.)

Raw Iron and Steel.—The market since our last has presented scarcely any change. There is still an active inquiry for spot Bessemer and soft steel billets with stocks reduced to a very limited amount, and producers all sold ahead; several sales of Bessemer have been booked deliverable in 30 days after the strike question has been settled. The strike so far has shown some curious things; for example, coal to-day is worth more than coke, so instead of putting labor on coal to make coke out of it the operators are devoting all their energies to mining and selling coal. It requires 1½ tons of coal to make a ton of coke, which brings from $1.50 to $2, whereas the coal famine has almost caused the price of coal to double; the operator receives upward of $3 for the coal that would be consumed in making a ton of coke. While a certain amount of progress has been made in the resumption of coke plants, additional furnaces have been compelled to shut down because of the inability to secure fuel; the same condition of affairs is said to be the case in the finishing mills throughout the country owing to the scarcity of soft coal, and further suspensions of work are reported here and

at various other points. The aggregate of transactions is gradually becoming smaller on account of the inability to make prompt shipments, and in cases where manufacturers are able to meet the demand for material for immediate wants there is no difficulty in obtaining a liberal advance over the rates in force a few weeks ago. Stocks of both crude and manufactured products have been reduced to limited amounts, and this fact, taken in connection with higher freight rates on material and a better feeling in regard to an early settlement of the tariff controversy, renders a return to the low prices which prevailed before the coal and coke strike highly improbable. A reaction from the rates asked for Bessemer pig iron and billets for prompt delivery is to be expected, but the quotations for summer and fall requirements are still considerably above the prices at which sales were made a month or two ago.

Latest.—Owing to light stocks prices show scarcely any change; there is no spot Bessemer on the market; futures can be obtained at last week's figures. Billets and future deliveries unchanged. Steel wire rods advanced 50 cents per ton. Skelp iron, wide and narrow-grooved, declined 2½ cents per 100 lbs Skelp steel is unchanged; ferro manganese is held at $1 advance. In iron ore, standard Bessemer is scarce and very firm, and has advanced 25 cents per ton. Soft sheet steel is very firm at an advance, ranging now $2.40@$2.70 per 100 lbs.

Coke Smelted Lake and Native Ore.

Tons.	Cash.
5,000 Bessemer, delivered first 30 days after coal strike is settled	$12.60
2,500 Bessemer, same conditions	12.75
5,000 Bessemer, in three months	12.65
3,000 Bessemer, July, August	12.35
2,000 Bessemer, July, August	12 50
1,000 Bessemer, spot	13 50
750 Bessemer, spot	13 60
500 Bessemer, prompt	13 65
1,200 Gray Forge	10 00
1,000 Gray Forge	9 90
500 Gray Forge, June	9 75
100 No. 1 Foundry	11.75
100 No. 2 Foundry	10 75
100 No. 1 Silvery	13.50
100 No. 2 Silvery	12.25

Charcoal.

100 Cold Blast	23.00
100 Cold Blast	23.25
100 Cold Blast	23.50
100 Cold Blast	23.00
25 No 2 Foundry	16.50
25 No. 2 Foundry	16.25

Blooms, Billets and Slabs.

3,000 Billets, June, July, at mill	18.50
2,500 Billets, July, August, at mill	8.55
500 Billets, prompt, at mill	19 50
400 Billets, prompt, at mill	19.75
350 Billets, prompt, at mill	19.35
520 Billets, prompt, at mill	19.50

Skelp Iron.

500 Sheared	1.40 4 m.
500 Nar. gr'ved	1.32½ 4 m.
350 Sheared	1.45 4 m.
200 Wide gr'ved	1.32½ 4 m.

Skelp Steel.

500 Sheared	1.30 4 m.
500 Nar'w gr'v'd	1.20 4 m.
380 Wide gr'ved	1.20 4 m.

Ferromanganese.

150 80 per cent. delivered	54.00

Spelter.

100 Western, p r 100 lbs	3.34

Muck Bar.

500 Neutral prompt, delivered	20.00

Steel Wire Rods.

350 5 gauge American, at mill	25.50

Scrap Material.

100 Light steel scrap, gross	8.00
100 No. 1 R. R. W. S. net	10.25
100 Cut pipe, net	7.25
100 Boiler iron, gross	9.50
100 Wrought turnings, net	6.50
100 Heavy mixed steel, gross	9 10
50 Cast borings, gross	5.75
50 Cast scrap, gross	8.75

Old Rails.

500 Iron rails	12.00
200 Steel rails, mixed heavy	9.10
100 Iron rails	11.75
100 Steel, long	10 00
50 Steel, long	10.20

Philadelphia. June 8.

(From our Special Correspondent.)

Pig Iron.—There is no foundation for a rumor started that iron is fractionally higher, nor is it true that there is any stronger demand. A few concerns bought round lots of forge iron this week at $10.50 merely to protect themselves, as it is conceded on all sides that in no event will crude iron go lower. An advance in freights and restricted production, with the not remote opening of the fall trade, point to firmer prices soon, but this week there is an abundance of iron at old figures. No. 1 foundry is quiet at $12.50, No. 2 $11.50, Bessemer nominally $14.

Steel Billets.—Consumers covered early summer requirements some weeks ago, and in some instances shipments are delayed, but the manufacturers promise supplies soon. Quotations are nominal, June, $19.50; July, $18.50. Large stocks will be wanted as soon as deliveries can be made.

Merchant Iron.—Storekeepers report an active demand. Many are asking for stocks from mills. All mills that are making iron are getting 1·30, but are declining large orders with a view of supplying all their customers.

Nails.—A better feeling prevails because of lessened supply only. The demand is not greater. Quoted New York delivery prices, $1, which in large lots might be shaded.

Skelp.—Quite a number of small orders were placed this week at 1·20 for grooved.

Sheet.—Stovemakers and users of pipe iron and galvanized are in the market, though they do not appear anxious to order soon. The sheet mills have a fair amount of work.

Merchant Steel.—Orders are increasing, but for very small lots. Manufacturers are disappointed at this, as June is the month that many buyers contract for fall supplies.

Plate and Tank.—Fall work has not shaped up yet, but millmen who have canvassed every State from Maine to Virginia expect quite a run of orders in July for the fall. Tank is quoted at 1·30; shell, 1·50; flange, 1·60.

Structural Material.—Brokers and mill agents have been very active of late looking up work, and meantime finding a few orders which were taken at a slight advance over the lowest May quotations. Beams and channels, 1·40.

Steel Rails.—Mill representatives repeat former statements as to demand. The usual June indications of summer activity are lacking. The demand for girder rails, though far from sufficient to impart vigor to business, continues to be encouraging.

Old Rails.—Quotations for old iron rails are $12.

Scrap.—Heavy steel and No. 1 scrap can be had at $10.

METAL MARKET.

NEW YORK, Friday Evening, June 8, 1894.

Prices of Silver per Ounce Troy.

June.	St. Ex.	London Pence.	N. Y. Cts.	Value of £1. in $.	June.	St. Ex.	London Pence.	N. Y. Cts.	Value of £1. in $.
2	4.88¼	28⅜	61	.480	6	4.88¼	28⅜	62¼	.482
4	4.88⅜	28⅜	62⅛	.484	7	4.88¼	28⅜	62	.480
5	4.88¼	28⅜	62⅜	.483	8	4.88¼	28⅜	62¼	.482

The silver market opened strong at 28⅝d. this week; on large sales from this side it declined to 28⅜d., but closes firm to day at 28½d. China and Japan still continue moderate buyers.

The United States Assay Office at New York reports the total receipts of silver for the week to be 76,000 oz.

Gold and Silver Exports and Imports at New York, Week Ending June 2d, 1894, and for Years from January 1st, 1894, 1893, 1892.

	Gold.		Silver.		Excess of Ex. or Imp.
	Exports.	Imports.	Exports.	Imports.	
Week	$5,170,860	$1,278,782	$597,893	$87,219	E $1,402,752
1894	45,183,349	9,169,118	16,804,281	691,150	E 52,127,062
1893	67,839,488	5,729,193	13,041,551	1,166,378	E 73,985,185
1892	25,475,209	6,126,341	10,254,929	599,933	E 29,003,858

Of the gold exported for the week $4,500,000 went to Europe, chiefly to Germany; the rest was for Cuba. The silver exports were all to London. Nearly all the gold imported was French and Spanish coin intended for Cuba; the silver was from Mexico and Central America.

During the five days ending June 7th the exports and imports of gold and silver at the port of New York were as follows: Exports, gold, $3,902,500; silver, $421,506. Imports, gold, $101,129; silver, $2,289. All the gold exported was in American coin. $3,900,000 going to Germany, $500 to South America, and $2,000 to the West Indies. Of the silver exported, $19,589 was Mexican coin, $9,000 of which went to Germany and $10,589 to France; $4,867 was in English coin and went to the West Indies, and the remaining $397,050 was American coin and bullion which went to London.

NOTES OF THE WEEK.

While the set-back to improvement in general business, to which we referred last week, still continues, there are signs of improvement which are encouraging, and which point to an early removal of some of the obstacles to renewed prosperity. Tariff discussions and obstacles to legislation seem to be really coming to an end, and there is a prospect of an early vote on the tariff bill in the Senate. The bill, of course, will still have to go to the House again and to pass through that body and through a conference committee; but there is every reason to believe that its progress through those stages will be hastened by well-understood causes. Hot weather, the pressure of public opinion and the approach of a Congressional election will combine to make representatives anxious to get out of Washington and to have something done to which they can refer their constituents.

Indications are that the great soft coal strike is nearing its end. However unwise the action of the miners may have been in stopping work, nobody denies their right to do so, but their attempts to intimidate other workmen and their resort to violence to accomplish their object were both unwise and unlawful, and, as in similar instances in the past, they may prove to be the precursors of the men's defeat. It is impossible to estimate yet the amount of the injury done to the various industries of the country by this strike, and it is very difficult to say how great a decrease the bituminous output shows today as compared with six weeks ago. The Pocahontas region is the only one which is altogether unaffected by the strike. The other regions are either entirely idle or have but a very small number of mines at work. All the conferences which have been held thus far between the operators and the miners have failed of tangible results. It must be borne in mind that there is more than one region where the question of wages was not raised at all, the strikes being what are called "sympathy strikes." Where the men make no demands the operators are powerless to offer any settlement and are forced to wait until the general strike either fails or is declared off by the officers of the unions. In various States the authorities have been appealed to for protection by the mineowners, and the governors of Illinois and Ohio have even had to call out the militia. In Pennsylvania, Governer Pattison has warned the miners against acts of violence, and the Clearfield operators, among others, have at length decided to employ new men al ogether.

The period of distrust and depression, which began with the Baring failure, was felt first in Europe and last, but most severely of all, in this country, still shows its effects abroad as well as in the United States, having lasted longer than any period of the kind in the present century. We complain of distrust of investments and the consequent accumulation of unused capital; but the same conditions prevail in all the commercial countries of Europe. At all the financial centers money has collected to an amount hitherto almost unknown, and all the banks are carrying enormous balances for which they can find no use, since the owners are not willing to invest it in anything presenting the least risk. Even ordinary commercial risks are accepted with reluctance, and speculation is for the time almost dead. In London the amount of capital invested in new enterprises is less than for years past, and money is difficult to obtain for the most promising schemes. The money market shows the anomalous condition of extremely low interest rates, while at the same time it can only be obtained on the very best class of securities.

Under these circumstances it is natural that, while speculative securities rule very low, "gilt-edged" investments command an abnormal price. British consols, for instance, are quoted this week a little above par; French 3% rentes at 101, and Russian new 3% bonds—usually the lowest of any of the European government obligations—are selling at 89@90. We have recently referred to the enormous subscriptions for the new French and German loans. An issue of $30,000,000 new 3% gold bonds made last week by the Indian Government in London at 98 was largely over-subscribed, and the bonds have already sold at 101, in spite of the fact that, according to its budget announcement, that government will have to borrow at least $100,000,000 in England during the current year; an amount which may be increased by $25,000,000 should the depression in Indian exports continues and the difficulty of disposing of Council bills increase. All these matters show the condition of trade in a strong light.

The shipments of gold still continue in considerable amount. The Tuesday and Thursday steamers from New York took $3,250,000, and up to date there have been reported $2,500,000 taken for shipment from New York and $500,000 from Boston by Saturday's steamers, which will bring the total for the week up to $6,250,000. Exchange still continues above the exporting point, in spite of the large balance of merchandise exports reported for the current fiscal year.

The House of Representatives has defeated, by a decisive majority, the proposition to remove the 10% tax on circulation of State banks.

The total amount of new capital subscribed in London up to May 26th of this year was £25,927,944; an amount which compares with £20,198,154 in the corresponding period last year; £43,398,391 in 1892; £48,441,059 in 1891, and £86,179,625 in 1890. The amount includes all classes of securities subscribed for, government and municipal as well as company issues. The increase this year over last is due to the Indian loan and other large amounts of government securities; the taking of company issues has shown a decrease.

The statement of the New York banks for the week ending June 2d shows decreases of $1,783,300 in loans, $2,060,400 in deposits, $706,000 in specie and $57,400 in circulation; an increase of $554,300 in legal tenders. The total reserve reported was $220,999,700, being $77,965,100 in excess of legal requirements. This surplus reserve of $77,965,100 compares with $20,987,500 at the corresponding date last year; $23,679,750 in 1892; $6,687,600 in 1891; $4,910,375 in 1890, and $11,056,175 in 1889.

The statement of the United States Treasury on Thursday, June 8th, shows balances in excess of outstanding certificates amounting to $119,322,689, made up as follows: Gold, $73,962,205; silver, $12,740,823; legal tenders, $19,257,077; treasury notes, etc., $13,362,584. Changes during the week were decreases of $2,588,398 in the total balance, and of $5,317,810 in the gold balance. Most of the gold exported recently has been taken from the Treasury in exchange for legal tenders.

There have been some rumors of a new issue of bonds to replenish the Treasury gold reserve; but there seems to be no foundation for these reports.

The Bank of England on Thursday, June 7th, reported its total gold holdings at £37,060,590, an increase of £9,575,167 as compared with the corresponding date last year. The bank reserve has now reached the almost unprecedented figure of 70%.

The Bank of France on Thursday, June 7th, reported its specie holdings (in sterling) at £71,285,

349 gold and £51,154,825 silver: an increase of £2,723,497 gold and a decrease of £93,303 silver as compared with the corresponding date last year. Changes during the week were an increase of £211,000 gold and a decrease of £9,000 silver.

A Berlin dispatch says that in his speech closing the meetings of the Imperial Silver Commission June 7th, Count von Posadow sky, the imperial secretary of the treasury, said he believed that the members were agreed that fluctuation depreciated the value of silver and entailed certain losses upon Germany's foreign and home trade; that Germany alone was powerless to raise the price of silver, and that it was impracticable to do so, either by the creation of a monopoly by international agreement or by the regulation of the production. Among other points remaining in dispute, he said, was what ratio should be proposed between gold and silver, and also whether the suggested remedies would not be more dangerous than the depreciation of silver itself. To avoid injurious reaction on German credit and commerce great discretion and moderation were required. The members of the commission would render a public service by helping it spread the conviction that serious difficulties attended the solution of the silver question. The government would examine all the proposals submitted to it, and would make those it regarded as feasible a basis for further consideration.

The Mint Bureau reports the coinage at the mints of the United States during the month of May as follows:

	Pieces.	Value.
Double eagles	101,000	$2,020,000.00
Eagles	642,545	6,425,450.00
Total gold	743,545	$8,445,450.00
Half dollars	524,000	$262,000.00
Quarter dollars	1,652,000	413,000 00
Total silver	2,176,000	$675,000.00
Total coinage	2,919,545	$9,120,450.00

No subsidiary coinage is reported for the month. The coinage of gold was large and that of silver small.

Exports of silver from London from January 1st to May 24th are given by Messrs. Pixley & Abell's circular as follows:

	1893.	1894.	Changes.
India	£3,187,280	£2,309,235	D. £878,045
China	171,203	1,510,215	I. 1,339,042
The Straits	819,440	505,207	D. 314,233
Totals	£4,177,923	£4,324,687	I. £146,764

Exports for the week ending May 24th were £80,000 to India; for the preceding week (May 17th) they were large, including £22,500 to India, £59,607 to the Straits, £225,372 to China and £106,000 to Japan.

After falling last week to 12 1/16d., the price of India Council bills has again gone up slightly, and on Wednesday 45 lakhs of rupees were sold at an even 13d. per rupee. The amount of bills is to be reduced somewhat for the coming two or three weeks, and only 40 lakhs will be offered next week, instead of the 50 or 60 lakhs which have been sold for several weeks past.

The production of tin plate in the United States for the year 1893, as reported by Special Agent Ayer to the Treasury Department, was: Tin plate, 64,536,192 lbs.; terne plate, 59,070,498 lbs.; total, 123,606,690 lbs.; of the total amount of black plates used in this manufacture, 54 337,889 lbs. were made in the United States, and 69,268,818 lbs. were imported. The total production of American black plates was 71,673,146 lbs.

Domestic and Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$.51¼	$.52
Peruvian soles and Chilean pesos	.51	.52¼
Victoria sovereigns	4.85	4.89
Twenty francs	3.90	3.93
Twenty marks	4.80	4.85
Spanish 25 pesetas	4.82	4.88

Other Metals.

Copper is still pursuing its downward course, and will continue to do so so long as the demand does not show a material improvement. The large sale of Lake copper of which we treated in our last issue has since been confirmed as having been made by one of the leading companies, for delivery over June, July and August, at 9c., and the quantity involved is said to be in the neighborhood of 15,000,000 lbs.

The demand for this particular description of copper is under these circumstances pretty well filled for that period, unless there should be a great revival in trade, in which event the product of the other companies would appear to us to be sufficient to meet it. The conclusions which are being drawn from this sale are that the market will for some time to come rule at about the price established by this transaction. In the open market, Lake copper could not until a few days ago be bought below 9¼, but since then 9¼ has been accepted, and we understand more is to be had thereat.

Electrolytic copper continues to be in very good demand, and is quoted at 8⅞, while Arizona pig is nominally held at 8¼.

Values abroad have again experienced a sharp decline. G. M. B's, which closed last week at £38 12s. 6d. for spot, advanced since to £39 2s. 6d., but closed yesterday at £38 12s. 6d. for spot and £38 17s. 6d. for three months.

The reports from manufacturing centers are still very discouraging; business seems to be more or less at a standstill, and what little there is is being eagerly competed for by English and continental refiners of copper, giving our producers little chance to compete successfully. We quote: English Tough, £40 10s.@£41; Best Selected, £41 10s.@£42; Strong Sheets, £50@£50 10s.; India Sheets, £46 10s.@£47; Yellow Metal, 4¼d.

The exports of copper from the port of New York during the week ending June 8th as reported by the New York Metal Exchange were as follows:

Rotterdam—Carlisle	Ingots	25 tons
Bordeaux—Panama	Pigs	75 "
Antwerp—Rhynland	Plates	13 "
Hamburg—Dania	Ingots	25 "
Liverpool—Nomadic	Pigs	100 "
Swansea—Brooklyn City	Pigs	27 "
" "	Plates	2 "
Havre—La Bourgogne	Plates	50 "
" "	Ingots	25 "
Rotterdam—Spaarndam	Plates	120 "
" "	Ingots	130 "
Liverpool—Lucania	Pigs	50 "
Genoa—Werra	Ingots	75 "
Liverpool—Teutonic	Pigs	100 "
Newcastle—Salermo	Pigs	105 "
St. Petersburg—Martello	Ingots	290 "
Hamburg—Grimm	Ingots	25 "
Liverpool—Bovic	Pigs	215 "
Matte:		
Swansea—Monomoy		50 tons

Exports of copper from Baltimore for the week ending June 7th are reported by our special correspondent as follows:

June 1, Rotterdam—Urbino	14,783 ingots,	224,000 lbs.
" " " "	95 cakes,	22,522 "
" " " "	254 ingot bars,	11,336 "
" " " "	1,785 bars,	224,046 "
" Hamburg—California	320 cakes,	67,994 "

The total exports of metals from the port of Baltimore are reported by our special correspondent as follows:

Copper, bars, ingots, etc	1,519,624 lbs.
Zinc	13,137 "
Tin scrap	184,997 "
Steel, in bars	62,508 "
Ferromanganese	24,589 "
Pig iron	60 tons

The pig iron went to Cienfuegos, Cuba; all the rest of the exports were to European ports.

Tin showed a slight improvement early in the week, which, however, was partially lost at the close, the market closing weak at 19·80 for spot and June deliveries, the highest quotation ruling having been 20c.

In London, the market advanced from £71 5s. for spot to £71 17s. 6d., but closed at £71 7s. 6d. for spot, and £71 15s. for three months.

Lead continues to be offered quite freely, some of the refiners having been particularly anxious to realize on larger holdings which they had accumulated, and accepting therefor the lowest price that has ruled for some time past, viz., 3¼ New York. The transactions in this market during the week amount to nearly 1,000 tons, but the demand is now filled, and a pressure to market more would undoubtedly result in still lower values.

The London market is, if anything, a shade easier, the quotation being £9 2s. 6d., with English lead quoted at £9 5s.

St. Louis Lead Market.—The John Wahl Commission Company telegraph us as follows: "Lead unsettled and prices on the down grade; latest sales are on basis of 3·02½c. East St. Louis speculators have indulged very freely in selling lead within last few days, evidently believing we are going to see still lower prices. Lead from legitimate channels is not obtainable below 3·05c. and may say very little at that."

Spelter is again somewhat quieter, the coal strike having interfered quite seriously with the galvanizing business, and the supplies available have in consequence been more abundant than the demand could take care of. In addition to this, fairly large stocks are held by some of the smelters, who have been accumulating their production since about two months, thinking that by doing so they would be able to influence the market for the better and realize higher prices. It is feared that if conditions warrant an improvement, these accumulations will be thrown on the market, so that an advance, if it at all sets in, will probably not be maintained. The prices ruling are 3·40 New York and 3·15 East St. Louis.

Antimony unchanged. Quotations are 9¼c. for L. X.; 8¾ for Hallett's; 10c. for U. S. French Star.

Quicksilver.—Quotations are: New York, $36; London, £6.

Aluminum.—The Pittsburg Reduction Company furnishes the following quotations: No. 1 (guaranteed over 98% pure) in rolling ingots, 75c. per lb. in small lots; 73c. per lb. in 100-lb. lots 70c. per lb. in ton lots. No. 1 aluminum in ingots for remelting: 65c. per lb. in small lots; 60c. per lb. in 100 lb. lots; 55c. per lb. in ton lots and over. No. 2 grade (guaranteed to be over 94% pure aluminum, with no injurious impurities, for alloying with iron and steel) cast in ingots for remelting: 60c. per lb. in small lots; 55c. per lb. in 100-lb. lots; 50c. per lb. for ton lots and over. Aluminum castings, from 90c. per lb. upward, in accordance with the number of castings, their weights, etc. Sheets are quoted 80c.@$4.40 per lb., according to thickness and size. Wire, $1@$2.50 per lb., according to gauge.

Abroad, the Neuhausen Company continues to quote 5 fr. per kilogram for ingots in large lots. The price given is at works in Switzerland. In Paris 99% pure metal is quoted at 7 fr. per kilo. for ingots; 8 fr. for sheets; 11 fr. for wire, and 19 fr. per kilo. for tubes.

Bismuth.—Quotations on the New York Metal Exchange are $2 per lb. for lots of 500 lbs. or over; $2.25@$2.50 per lb. for smaller lots.

Magnesium.—The only concern at present manufacturing this metal in commercial quantities (the Aluminum und Magnesium Fabrik, Hemelingen, Germany), quotes prices as follows: Ingots and cubes, $6.48 per kilogram; bars, $6.24; powder, $8.64, ribbon and wire, $9.12 per kilo. These prices are at the works and for orders of over 10 kilos.; for less than 10 kilos. 24c. per kilo. must be added for ingots and bars, and 48c. for powder or wire.

Nickel.—Quotations in this market are steady at 45@50c. per lb., according to grade.

Phosphorus.—Quotations are 50@52½c. per lb., f. o. b., New York or Philadelphia.

Platinum.—Prices abroad are firm, with an upward tendency. For chemical ware, however, there is no change, as yet. Messrs. Eimer & Amend, New York, quote platinum crucibles and dishes, hammered ware, French make, at 45c. per gram for smaller quantities, 43c. per gram for lots of not less than 100 grams, and 41c. for lots of not less than 250 grams. Wire and foil at 42c., 41c. and 40c. respectively for the quantities named. Current retail price for crucibles is 50c. per gram.

Sodium.—There are no local quotations. In Germany and England the metal is quoted at 90c.@$1 per lb. at factory.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, June 8.

Heavy Chemicals.—The market for heavy chemicals is passing through a period of great dullness. During the past week there has been no change either in price or in the general condition of the market. Caustic soda continues in fair demand for prompt delivery. Bleaching powder is only in fair request. Alkali and carbonated soda ash are still very quiet. Prices are unchanged from last week. We quote: Caustic soda, 60%, 2·82½@2·97½c.; 70%, 2·60@2·70c.; 74%, 2·62½@2·72½c.; 76%, 2·70@2·80c. Carbonated soda ash, 48%, 1·05@1·25c.; 58%, 1·05@1·15c. Alkali, 48%, 1·05@1·15c.; 58%, 1@1·10c.; according package. Sal soda, ·80@·90c. Bleaching powder, 2·05@2·50c.

Acids.—There has been no improvement in this market. The demand is only moderate. There is no change in prices. We quote: Acids, per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acetic, in barrels, $1.62½@$1 75; muriatic, 18°, 80c.@$1; 20°, 90c.@$1.10; 22°, $1@$1.25; nitric, 40°, $4; 42°, $4.50@$4.75; sulphuric, 75c.@$1; chamber acid, $7.50@$8 per ton. Mixed acids according to mixture, oxalic, $6.40@$7.25 per 100 lbs. Blue vitriol is quoted at $3.75; glycerine for nitro-glycerine, 11½@12½c., according to quality and quantity.

Brimstone.—The brimstone market continues dull Quotations are as follows: Best unmixed seconds, on the spot, $16.25. August-September shipments, $15.75. Best thirds are 75c.@$1 less.

Fertilizing Chemicals.—The fertilizer market is exceedingly quiet, there being little or no buying. There has been an advance in sulphate of ammonia in the European market, in consequence of which gas liquor is now quoted at $3 85, and $3.25 for bone. Dried blood, $2.05@$2.10 per unit for high grade and $2@$2.05 for low grade. Azotine, $2.15. Concentrated phosphate (30% available phosphoric acid), 75c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5, 60c. per unit at seller's works in bulk. Dissolved boneblack, 17% to 18% P_2O_5, 95c. per unit. Acidulated fish scrap, $15@$16, and dried scrap nominally $25 f. o. b. fish factory; wet scrap $15 f. o. b. fish factory. Tankage, high grade, $22.50 @$23; low grade, $21@$21.50. Bone tankage, $23@ $24; bone meal, $24@$25 50.

In lots of 50 tons on contracts we quote: Double manure salts, 48-53% (basis of 48%): New York and Boston, $1.12; Philadelphia, $1.14½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.17. High grade manure salts, 90-95% and 96-99% (basis 90%), respectively: New York and Boston, $2.07@$2.11; Philadelphia, $2.09½@$2.13½. Charleston, Savannah, Wilmington, N. C., and New Orleans, $2.12@$2.16.

Phosphates.—Charleston, S. C., quotations are as follows: Acid phosphate, $6.25@$6.50 cash f. o. b. in bulk; phosphate rock, standard land, kiln dried, $4.50@$4.75 f. o. b. mines; ground rock, $6 f. o. b.;

Muriate of Potash.—In lots of 50 tons, quotations are as follows: 80-85% and minimum 95% (basis 80%), respectively: New York and Boston, $1.78 @$1.91; Philadelphia, $1.80½@$1.83½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.83¼ @$1.86.

Kainit.—Prices for kainit (minimum 23%) in cargo lots for 1894 delivery are as follows for invoice and actual weights respectively: New York, Boston and Philadelphia, $9@$9.25; Charleston, Savannah,

Wilmington, N. C., and New Orleans, $9.75@$10. For sylvinit, 27-35%, prices are as follows per cent. per gross ton, invoice weight: New York, Boston and Philadelphia, 37½c.; Charleston, Savannah, Wilmington, N. C., and New Orleans, 41c. Actual weight, 1c. more per cent.

Nitrate of Soda.—We quote this week: Spot, $2.25@$2.27½; summer shipments, $1.95@$2. W. R. Grace & Company, in their latest monthly circular, give the following statistics: Stock in store, 10,000 bags; discharging ex vessels New York, 20,000 bags; total, 30,000 bags. Due in June, N. Y., 17,000 bags; due in July, N. Y., 48,000 bags; due in August, N. Y., 70,000 bags; due in August, Philadelphia, 8,000 bags; due in August, Boston, 14,000 bags; total, 92,000; due in September and October, 140,000 bags. Visible supply to November 1st, 327,000 bags.

Liverpool. May 30.

(Special Correspondence of Joseph P. Brunner & Co.)

Since our last report the chemical market has remained in the same dull state, which has been the chief characteristic for a considerable time past. Soda ash in retail and for Leblanc makes prices are quite nominal, the spot range being about as follows: Caustic ash, 48%, £3 15s.@£4 per ton; 57% and 58%, £4 10s.@£4 15s. per ton. Carbonate ash, 48%, £3 5s.@£3 15s. per ton; 58%, £3 15s.@£4 per ton, net cash. Ammonia ash, 58%, is quoted at £3 10s.@£3 15s. per ton for tierces, and 5s. less for bags, but there is not much business reported.

Soda crystals are inactive at £2 12s. 6d.@£2 15s. per ton, less 5%. Caustic soda is as dull as ever and quotations vary considerably according to export market, the nominal spot range being about as follows: 60%, £7 10s.@£8 5s. per ton; 70%, £8 10s.@£9 5s. per ton; 74%, £9 10s.@£10 5s. per ton; 76%, £10 10s.@£11 5s. per ton, net cash. For parcels under 10 tons 5s. per ton extra is charged.

Bleaching powder is quiet and Alkali Company's quotations are unchanged, ranging from £7 10s. to £8 5s. per ton, net cash, for hardwood packages, according to export market. Chlorate of potash continues to droop and second-hand parcels can be had for prompt delivery at 6⅝@6¾d., but there is practically nothing doing to test the market.

Bicarb. soda is selling to a fair extent at £6 15s. per ton, less 2½% for one cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia is scarce and holders now quote £14 7s. 6d.@£14 10s. per ton, less 2½% for good gray 24 and 25% in double bags f. o. b. here, according to quality. Nitrate of soda has stiffened a little and is now held for £10 2s. 6d. per ton, less 2½% for double bags f. o. b. here. Carb. Ammonia.—Lump, 3¾d. per lb.; powdered, 4d. per lb., less 2½%.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Aspen, Colo.; Baltimore, Pittsburg, St. Louis, London and Paris, see pages 550 and 552.]

NEW YORK, Friday Evening, June 8.

The past week in the mining stock market has been a remarkable one in many respects; not only was it duller than the week before, but it was the dullest week on record at the Consolidated Stock and Petroleum Exchange, and that is saying a great deal.

The total sales for the week amounted to but 2,850 shares. On these the brokers' buying commissions were less than $25.

The Comstocks were neglected this week. They ruled weaker and lower in price. Consolidated California & Virginia shows sales of 200 shares at $4.40 @$4.45. The bidding price at the close to-day was about $1 under these quotations. There was a single sale of 100 shares of Ophir at $3.15. Comstock Tunnel was stationary at 6c.; total sales were 1,000 shares. Other sales during the week were: 100 shares of Sierra Nevada at 90c.; 100 shares of Yellow Jacket at 80c.; 100 shares of Best & Belcher at $1.95; 150 shares of Mexican at $1.00@$1.40. The closing prices to day were without exception considerably lower than the above figures. They will be found in our San Francisco market report.

No California, South Dakota, Utah or Arizona stocks were traded in during the week.

Of the Colorado shares, Leadville Consolidated was stationary at 10c., with sales of 700 shares. Of Little Chief 400 shares changed hands at 15c.

The annual election of officers of the Consolidated Stock and Petroleum Exchange will be held on June 11th. The regular nominations are as follows: For president, Charles G. Wilson; first vice-president, Thomas L. Watson; second vice-president, J. E. Vail; treasurer, John Stanton; chairman, A. W. Peters; trustees of gratuity fund, H. A. Haven and C. A. Badeau; members of arbitration committee, W. J. Currie, A. R. Hawley, J. W. Alpers, W. B. Hutchkin, C. Edward Graff, A. P. Morrison, John F. Scott; directors, Samuel Dorning, W. T. Callaway, W. H. Clark, P. T. Grandin, H. A. Haven, C. W. Hickling, M. Hirschfield, C. C. Jacobus, H. E. Jenkins, S. J. Marx, A. W. Peters, C. H. Ray, C. Weinberg, C. R. West, A. G. Williams and S. C. Williams.

Boston. June 7.

(From our Special Correspondent.)

The decline in ingot copper to 9c. per lb. has discouraged speculation in copper stocks, and the market is gradually settling to a lower level. Even the regular dividend-payers are not eagerly sought for, trading in them is limited, and any attempt to sell large lots results in further decline in prices.

A few small lots of Calumet & Hecla were sold at $272 and $270. Tamarack has been pressed for sale this week, and we note a decline from $163, the highest point, to $158 at the close. Both of these stocks can pay dividends even with copper at 9c., and they are about the only ones in the lake region which can do so, which accounts for the degree of firmness manifested in them. On the other hand Osceola, Franklin and Atlantic will find it hard work to make much money under present conditions, and these stocks show a steady decline. To the list of dividend payers Quincy must be added, but there is not so much confidence in this stock as in Calumet & Hecla and Tamarack, and the price of it declines in sympathy with the rest of the market. Osceola declined this week from $20¾ to $19½, and Atlantic to $7½, while there were no sales of Franklin, the best bid being $7½. Quincy sold in a small way at $88, and declined to $86, with the scrip selling at $29. A small lot of Centennial sold at $1, but later it was offered at 75c., with 50c. the best bid. Allouez sold at 9c. for 500 shares, the best bid being 6c. later on. There were no sales of Kearsarge or Wolverine, nor of Tamarack, Jr., the latter being offered at $15, with no bidders.

There has been considerable pressure to sell the Montana stocks this week, resulting in a decline in Boston & Montana from $24¾ to $23½ and in Butte & Boston to $9. It is doubtful if the Boston & Montana can earn dividends at the present price of copper, and it is quite certain the Butte & Boston cannot. If these companies can earn their fixed charges they will do quite as well as could be expected, and we do not look for an advance in the price of either of these stocks unless conditions materially change for the better.

The market closed dull without any special feature.

San Francisco. June 2.

(From our Special Correspondent.)

The week just ending has been chiefly notable in the mining stock market for a marked decline in values, resulting, however, from no untoward happenings on the Comstock, but simply the natural consequence of "mining" on Pine Street. Indeed the outlook in the Consolidated California & Virginia mine is, by private advices received to-day, much better. The ore being stoped out just above the 1,650 level is looking much better, and the south drift 28 ft. below the 1,650 level, that was showing in low grade ore, has again passed into high grade ore. The work of extracting ore from this level has begun. The downward tendency of the market throughout the week made dealers anticipate another break this morning, but such anticipations were proved unsound, for an advance took place in all the leading stocks—this for the reason, most probably, that the above favorable news from the Consolidated California & Virginia caused certain of the brokers to enter the market with moderately large orders to buy.

The leader sold yesterday afternoon down to $4.35, and opened to-day at 10c. advance, scaling through to-day to $5.20, but declining later and closing at $4.95. Ophir sold at the opening for $3, a decline of 90c. on the week's trading, but declined during the day to $2.75, and closed at 15c. off. Mexican ruled at $1.35; Sierra Nevada at 95c; Union Consolidated at 75c.

The middle group of Comstocks sold heavy. Best & Belcher ruled at $1.75, closing 10c. weaker. Chollar, that sold a week ago for 65c., ruled to-day at 50c.; Gould & Curry for $1.10; Hale & Norcross for 83c., Potosi for 90c. and Savage for 75c.

Several of the Gold Hill stocks, on the other hand, sold stronger to-day than last week, albeit the volume of trade was not large. Belcher last week ruled at $1.35, and to-day sold at a small advance; Crown Point sold for $1.05 as compared with 85c. a week ago, and Yellow Jacket sold for 90c., an advance of 10c. during the weak. Of the remaining small priced stocks Challenge sold for 52c., Consolidated Imperial for 2c., Consolidated New York for 4c., Overman for 27c., and Justice for 15c.

The outside stocks have, as usual, been left severely alone, save in the case of the Bodies. Letters from the Tuscarora camp are again beginning to record interesting events, so probably these stocks will soon again be figuring on the list for the benefit of the "gudgeons" who prefer to pay a price for their experience in stock gambling. Bodie Consolidated to-day sold for $1.10, and after fluctuating at the several sessions, closed at 95c.; Bulwer sold for 12c. These ruling prices show a decline of 30c. and 2c. respectively on the week's trading.

The market weakened again before the close, prices shading off from 5c. to 30c. per share.

BY TELEGRAPH.

SAN FRANCISCO, June 8.—The opening quotations to-day are as follows: Best & Belcher, $1.55; Bodie, $1; Belle Isle, 10c.; Bulwer, 11c.; Chollar, 40c.; Consolidated California & Virginia, $3.85; Gould & Curry, 97c.; Hale & Norcross, 72c.; Mexican, $1; Mono, 22c.; Navajo, 10c.; Ophir, $2.55; Savage, 67c.; Sierra Nevada, 80c.; Union Consolidated, 57c.; Yellow Jacket, 56c.

London. May 31

(From our Special Correspondent.)

Operations on the Stock Exchange continue to be restricted and lifeless, as reported last week, and affairs do not look very promising for the near future. Very little business has been done in American mining stocks, and all have suffered considerably by the want of support. De Lamars have been weak owing to the appearance of a few small sellers who were frightened by the recent slump, and the price has sunk to 17s. The companion stock Harqua Hala has had a bad week of it, and yesterday the price went down to 10s., though it recovered subsequently to 11s. The reports which come to hand from this mine are very dreary, and are causing a good deal of uneasiness among holders.

The shares of the Springdale Gold Milling and Mining Company have been inquired for during the past few days, on account of the favorable report issued by Mr. A. L. Pearse, who has recently examined the property at the instance of the large shareholders in London. Mr. Pearse in his report states that he has examined the claims of the company, the Rip Van Dam, Victor, J. Alden, Mountain Lion and Dardenelle. The belt in which these mines are situated is the telluride zone of the country. This ore is shipped direct to the smelters at Denver, but owing to its irregularity Mr. Pearse is strongly of opinion that operations should be conducted on the basis of the average low grade ore which contains $9 to $10 per ton. At the Mountain Lion mine alone he estimates that there is at least 5,000 tons of this low grade ore ready for immediate treatment, besides a large quantity which lies unbroken in the stopes. The rich ore is worked on tribute so that the low grade ore is excavated at present without any cost. Mr. Pearse recommends a rapid and deeper development and the erection of a 15 stamp mill at the mine to treat the low grade ore.

The Fisk Gold Mining and Milling Company, which was floated here last year to take over a Colorado property, has declared a first dividend of 6d. per share.

Paris. May 30.

(From our Special Correspondent.)

Our market has been much disturbed by the political troubles of which the cable has, without doubt, kept you well informed. M. Casimir-Perier has made mistakes, but his administration has been in the main satisfactory, and at any rate he has disposed himself to resist the demands of the radical and socialist parties, whom our financiers do not love. The uncertainty as to the new ministry has affected us all.

The metallurgical shares have been generally unsteady and show a falling tendency. The most notable decline has been in Fives-Lille, which has sold at 667 fr.

In general mining stocks the market has also been somewhat unsteady, but has shown some surprises. In spite of the low prices of zinc and lead Vielle-Montagne has been firm, and Laurium shares have been as active as one can expect in this time of limited speculation. Dombrowa, Aguas-Tenidas, Carmaux and Mokta-el-Hadid have all fallen on light sales. The dealing in Nickel has been heavy (that is, comparatively to other stocks), and it shows a continued downward tendency. Huanchaca has done best of all, gaining a little on good reports from the mine.

To tell the truth, there has been more speculating in outside shares than in our own, and the Transvaal gold companies seem to attract our people. The dealing in these of course follows the London market.

De Beers Consolidated has been weaker. The prospective gain by the refunding of the debentures at lower interest was fully discounted two weeks ago; as usual in such cases, it is now seen that the gain is less than was at first calculated.

The copper shares are weak on the continued low prices of the metal. Rio Tinto, Cape Copper and Jerez-Lanteira have all been lower; Tharsis alone has held its own, but on very light sales.

I see that your New York reporter is pleased to make some sarcastic remarks on the condition of the brokers in mining stock there. Messieurs their confreres here can sympathize with them, for they too look for a public which does not come. Speculation is not active, though money is abundant and cheap. Let us all hope for better times. AZOTE.

DIVIDENDS.

Bald Butte Mining Company paid dividend No. 26, of 10%, $25,000, June 2d, at the office of the company, in Helena, Mont.

MEETINGS.

Appleton Mining Company, at the office of the company, in Norway, Mich., June 25th, at 2 p. m.

Bodie Consolidated Mining Company, at the office of the company, room 62, Nevada Block, No. 309 Montgomery street, San Francisco, Cal., June 18th, at 1 p. m.

Calumet Mining and Milling Company, at the office of the company, No. 10½ E. Pike's Peak Ave., Colorado Springs, Colo., June 15th, at 11 A. M.

Conlon Gold Mining Company, at the office of the company, 26 Montgomery street, San Francisco Cal., June 15th, at 12 o'clock noon.

Consolidated Night Hawk & Nightingale Gold Mining Company, at the office of Messrs. Lewis & Wheeler, No. 1525 Eighteenth street, Denver, Colo. June 28th, at 3 p. m.

Pactolian Quartz Mining Company, at the office of the company, room 19, Mills Building, San Francisco, Cal., June 14th, at 2 p. m.

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 2. H.	June 2. L.	June 4. H.	June 4. L.	June 5. H.	June 5. L.	June 6. H.	June 6. L.	June 7. H.	June 7. L.	June 8. H.	June 8. L.	SALES.
Belcher, Nev.													
Belle Isle, Nev													
Bodie Cons., Cal													
Bulwer, Cal													
Chrysolite, Colo													
Comstock T. bonds, Nev													
" scrip., Nev													
Cons. Cal. & Va. Nev				4 45			4.40						200
Crown Point, Nev													
Deadwood, Dak													
Eureka Cons., Nev													
Father de Smet, Dak													
Gould & Curry, Nev													
Hale & Norcross, Nev													
Homestake, Dak													
Horn Silver, Utah													
Kentuck, Nev													
Leadville Cons., Colo			.10		.10		.10						700
Little Chief, Colo			.15				.15						400
Mono													
Mt. Diablo, Nev													
Navajo, Nev													
N. Belle Isle, Nev													
Ontario, Utah													
Ophir, Nev			3.15										100
Plymouth, Cal													
Quicksilver, Pref., Cal													
" Com., Cal													
Savage, Nev													
Sierra Nevada, Nev				.90									100
Silver King, Ariz													
Standard Cons., Cal													
Yellow Jacket, Nev			.80										100

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 2. H.	June 2. L.	June 4. H.	June 4. L.	June 5. H.	June 5. L.	June 6. H.	June 6. L.	June 7. H.	June 7. L.	June 8. H.	June 8. L.	SALES.
Am. Flag													
Alpha													
Alta													
Barcelona, Nev													
Belmont, Cal													
Best & Belcher, Nev					1.95								100
Brunswick, Cal													
Castle Creek													
Challar, Nev													
Comstock T., Nev				.06									1,000
Con. Imperial, Nev													
El Cristo, Rep. of Col													
Exchequer, Nev													
Independence, Nev													
Julia, Nev													
Justice, Nev													
King & Pembroke													
Lacrosse, Colo													
Mexican, Nev				1.40		1.00							150
Middle Bar, Cal													
Mono													
Nevada Queen, Nev													
N. Standard, Cal													
N. Commonwealth, Nev													
Overman, Nev													
Oriental & Miller, Nev													
Phœnix of Aris													
Potosi, Nev													
Scorpion, Nev													
Seg. Belcher, Nev													
Union Cons., Nev													
Utah, Nev													

*Ex-dividend. †Dealt in at New York Stock Ex. Unlisted securities. ‡Assessment paid. ◊Assessment unpaid. Dividend shares sold, 1,600. Non-dividend shares sold, 1,250. Total shares sold, 2,850.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	June 1.	June 2.	June 4.	June 5.	June 6.	June 7.	SALES.
Atlantic, Mich	8 00			8.00		7.50	75
Breece, Colo							
Bonanza Development	24.50		24.38	24.00	23.63	23.75	2,110
Calumet & Hecla, Mich	272			272	270		12
Central, Mich							
Coeur d'Alene, Id							
Franklin, Mich							
Honorine, Utah							
Horn Silver, Utah							
Kearsarge, Mich							
Lake Superior, Iron							
Minnesota Iron, Minn							
Napa, Cal							
Ontario, Utah							
Osceola, Mich				20 50	20.13	20.00	880
Quincy, Mich				83.00	36.00		67
" script	29.00					29.00	7
Silver King, Aris							
Tamarack, Mich			162	163	160	160	135
Tecumseh, Mich							

NAME OF COMPANY.	June 1.	June 2.	June 4.	June 5.	June 6.	June 7.	SALES.
Allouez, Mich			.09				500
Arnold, Mich							
Aztec, Mich							
Brunswick, Cal							
Butte & Boston, Mont	9.13	9.00	9.13		9.00		464
Centennial, Mich	1 00					9 00	15
Colchis, N. Mex							
Copper Falls, Mich							
Hanover, Mich							
Humboldt, Mich							
Huron, Mich							
Mesnard, Mich							
National, Mich							
Native, Mich							
Oriental & M., Nev							
Phœnix, Aris							
Pontiac, Mich							
Tamarack, Jr., Mich							
Washington, Mich							
Wolverine, Mich							

Dividend shares sold, 3,267. Non-dividend shares sold, 979. Total shares sold, 4,246.

COAL AND COAL RAILROAD STOCKS.

NAMES OF STOCKS.	June 2. H.	June 2. L.	June 4. H.	June 4. L.	June 5. H.	June 5. L.	June 6. H.	June 6. L.	June 7. H.	June 7. L.	June 8. H.	June 8. L.	Sales.
Am. Coal													
Balt. & Ohio													
do pref													
Buff., R. & P													
do. pref													
Cambria Iron													
Ches. & Ohio													
do. 1st pref													
Col. C. & I													
Col. Coal													
Colorado Fuel	20										25	34⅝	305
do. pref													
Col., H. V. & Tol	17	16⅜	18	17¾			18⅜	17⅜	18⅜	18¼			2,400
do. pfd													
Col. & H. Coal													
do. pfd													
Cons. Coal													
Del. & Hud. C	131				130⅝		13	130¾	130¾				1,465
Del., L. & West	161¼						161¼						320
Hunt. & B. Top													
do. pref					50	49¾							25
Lake Erie & Wes											15		200
do. pref					66¾		66¾		67				130
Lehigh C. & N					51								50
Lehigh Valley			37⅛	37¼	37¼	37	37⅛	37⅜	38⅛	37¾			1,132
Maryland Coal													
do. pref													6
Morris & Essex	15¾												
New Cent. Coal													
N. J. Central	106		106⅛	105	106	105⅝	106¼				107⅛	106⅜	1,133
N. Y., L. & W	114		114						114¾				140
N. Y., L. E. & W					14	13⅝	14¼	14	14⅜		14⅜	14⅜	1,435
do. pref							29¾	28	29				476
N. Y., Susq. & W			15¼		15		15⅜	15¼	15¼				880
do. pref			40						41	40¾	41¾	41¼	820
N. & West													
do. pref									21¾				100
Penn. Coal													
Penn. R. R			49¼	49	49¼	49⅛	49¼	49⅛	49⅜	49¼			1,905
Phil. & Reading	16⅜		17	16⅛	17	16¼	17⅜	17¼	17¾	17⅜	17⅜	17⅜	10,700
Penn. C. & I	18		18		18	17¾	18⅛	18	18⅜	17⅞	18¾	18	4,316
do. pref													
Wheel. & L. E	11⅛	11⅛	11⅜		11⅛	10⅝	11⅛	11	11¼	11¼	11⅜	11¼	1,625
do. pref	45⅜		45¾								44¾	44	540

Total shares sold, 30,126.

INDUSTRIAL AND TRUST STOCKS.

NAME OF STOCKS.	June 2. H.	June 2. L.	June 4. H.	June 4. L.	June 5. H.	June 5. L.	June 6. H.	June 6. L.	June 7. H.	June 7. L.	June 8. H.	June 8. L.	Sales.
Adams Express													
Am. Cotton Oil			26½		27½	27¼	27½		28½	28	29½	29½	1,780
do. pref	67				67½	67	68½		69		69½	69½	962
Am. Dist. Tel													
Am. Express			114	112½			114						30
Am. Sugar Ref	104¾	103¾	104⅝	102¼	105¼	104¼	105⅜	105⅛	107⅛	105¼	105⅜	104¼	471,640
do. pref	98	93⅜	99	94	96	94⅜	96¼	95⅜	96	95½	95¼	94¼	8,140
Edison E. Ill. Co							99⅞		100	99½			414
Edison Gen El	38⅜		38½	35¼	36¼	35	38⅝	35⅝	38	35⅛	38⅛	37¼	40,309
Nat. Cord. Co	23¾	23¼	25	24	24⅜	24½	25⅜	24¼	25⅜	24⅛	24⅜	24⅛	17,525
do. pref			43		44		45½		46				305
Nat. Lead Co	39¾	37⅜	40⅜	39¼	41⅛	39½	41¼	39¾	40¼	40	41⅛	40⅜	24,752
do. pref	84		84		84½	84	84¾	84	84¾	84½	84½		8,906
Nat. Linseed Oil			18¾	18							18		400
U. S. Express					50		53		51				135
U. S. Rubber	38¾		38		37								147
do. pref	91½		91	90¾			91¼		93	91½			217
Wells, Fargo Ex	126				125		125						25
Western Union	84	83¾	84⅜	84	84¼	84⅛	84⅝	83⅞	85¼	84¾	85⅛	84⅝	15,667

Total shares sold, 515,934.

PENNSYLVANIA.

Philadelphia.

	Bid.	June 7. Asked.
Cambria		
Central Coal & C., pref		$90.00
Edison E. Light Co		122@125
Northern Liberties Gas		34.00
Penn. Salt		96.00
Penn. Steel		25.00
Washington, D. C., Gas	46.00	
Westmoreland C	51.00	52.00

UTAH.

Salt Lake City.

(Special Report by James A. Pollock.)

Stock quotations week ending June 2d, 1894:

	Bid.	Asked.
Alliance		$3.75
Anchor	$1.65	3.00
Centennial Eureka		28.00
Cleveland Con		0.50
Crescent	0.02½	0.05
Daly	5.75	7.50
Dalton	0.01	0.03
Horn Silver	2.50	2.75
Little Pittsburg		0.25
Mammoth	1.05	1.35
Mecars		0.75
Ontario	8.75	10.50
Silver Spar		1.00
Tetro		0.25
Utah		1.50

FOREIGN.

London Quotations.

	May 31, 1894. Buyer. £ s. d.	Seller. £ s. d.
Alaska Treadwell, Alaska Ter	2 15 0	3 0 0
Almada & Tirito, Mex	3	9
American Belle, Colo	1 6	2 0
Bonanaza Gold, Cal	5 0	6 0
De Lamar, Idaho	17 0	18 0
Elkhorn, Mont	12 0	13 0
Emma, Utah	3	6
Golden Feather, Cal	8 0	8 6
Golden Gate, Cal	6 0	6 6
Golden Leaf, Mont. & N. M	9	1 3
Harqua Hala, Aris	10 6	11 6
Holcomb Valley, Cal	1 0	1 3
Idaho Exploring	1 6	1 9
Jay Hawk & Lone Pine, Mont	6 3	7 6
La Ycsca, Mex	9	1 3
Mesquital del Oro, Mex, P	10 0	1 0 0
Mesquital del Oro, Mex., D	2 6	7 6
New Guston, Colo	13 0	15 0
New Montana, Mont	5 3	5 9
Palmarejo, Mex	1 0	1 6
Pinos Altos, Mex	6 6	7 6
Plumas Eureka, Cal	12 6	15 0
Poorman Con. Idaho	7 9	8 3
Rajah Gold, Can	1 0	2 0
Richmond Con., Nev	7 0	9 0
Sierra Buttes, Cal	8 0	10 0
Springdale Gold, Colo	2 3	2 6
United Mexican, Mex	1 0	1 6

CALIFORNIA.

San Francisco.

NAMES OF STOCKS.	CLOSING QUOTATIONS. June 1.	June 2.	June 4.	June 5	June 6.	June 7.
Alpha						
Alta	.18	.17	.15		.15	.12
Belcher						
Belle Isle						
B. & Belch	1.65	1.70	1.50		1.45	1.50
Bodie	1.10	.90	.99		.99	1.00
Bulwer	.10		.10		.15	.11
Challar	.50	.53	.42		.40	.40
Com'w'lth	.75					
Con. C. & V.	4.85	4.95	4.10		3.80	4.20
Con. Pac						
Crown Pt.	.97	.94	.68		.65	.70
Del Monte						
Eureka Con						
Gld & Cy	1.05	1.05	.95		.92	.93
Hale & N	.80	.80	.67		.72	.75
M. White						
Mexican	1.25	1 30	1.15		1.00	1.00
Mono	.20		.24		.20	.20
Mt. Diablo						
Navajo						
Nev. Qu'n.						
N. Belleisle						
N. Co'w'th						
Ophir	2.65	2.75	2.60		2.50	2.60
Potosi	.87	.82	.68		.62	.65
Savage	.72	.72	.65		.70	.70
Sierra Nev	.90	.95	.75		.76	.81
Tol'n Con	.76	.70	.61		.63	.60
Utah	.09	.08	.05		.05	.07
Yel. Jack	.75	.79	.65		.58	.58

COLORADO.

Denver.

Prices and sales for week ending June 5th, 1894.

	High.	Low.	Sales.
Alamo	.01½		5,000
Amity	.01		500
Aola	.02½		5,000
Argentum	.61		700
Anaconda	.26	.24	2,100
Bankers	.06	.05⅞	6,600
Big Six	.03½	.03⅜	7,000
Bob Lee	.01½	.01	4,000
Calumet	.01¾	.01⅝	8,500
Creede & Cr. Cr'k	.01½		500
Golden D	.00⅞		135,150
Gold S	.03¼		800
Jack Pot	.02		1,000
Justice	.01⅛		1,000
Mollie Gibson	1.30	1.27	900
Puzzler	.02		100
Union P	.03		500
Western M	.01		1,000
Work	.03¼		1,500
World	.02¼	.02	4,000
Total shares sold			175,850

MARYLAND.

Baltimore.

COMPANY.	June 7. Bid.	Asked.
Atlantic Coal		
Balt. & N. C		
Conrad Hill		
Cons. Coal		.31
Silver Valley	.20	.40

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total Levied	Assessments. Date and amount of last.			Dividends. Total paid.	Dividends. Date & amount of last.		
1	Adams, s. L. C.	Colo..	$1,500,000	150,000	$10	*	....	..	.....	$687,500	Jan..	1892	.05
2	Alaska-Treadwell, g.	Al'ka	5,000,000	200,000	25	.....	....	....	.....	1,900,000	Apr..	1894	.37½
3	Alice, s.	Mont.	10,000,000	400,000	25	*	....	....	.....	$75,000	Nov..	1891	.06¼
4	Amador, g.	Cal.	1,250,000	2 0,000	5	*	....	....	.....	81,250	Aug..	1890	.12½
5	American, g	Colo..	3,000,000	300,000	10	*	....	....	.....	225,000	Mar..	1892	.05
6	American Belle, s.& c	Colo.	2,000,000	400,000	5	*	....	....	.....	50,000	April	1891	.12½
7	Americ'n & Nettie, o.&	Colo..	.....	300,000	.....	.....	.....	.....	.....	175,000	Mar..	1892	.05
8	Atlantic, c.	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	700,000	Feb..	1891	.00
9	Argyle, g.	Colo..	1,000,000	1,000,000	1	*	....	....	.....	20,000	Mar.	1892	.01
10	Aspen Mg. & S., s. L.	Colo..	2,000,000	200,000	10	*	....	....	.....	980,000	Dec..	1893	.10
11	Aurora, I.	Mich..	2,500,000	100,000	25	*	....	....	.....	650,000	Feb..	1893	2.00
12	Badger, s	Ont...	250,000	50,000	5	.....	....	....	.....	37,500	Mar.	1890	.25
13	Bald Butte	Mont.	250,000	250,000	1	*	....	....	.....	195,000	May	1894	.10
14	Bates Hunter, s. g..	Colo..	1,000,000	1,000,000	1	.....	....	....	.....	67,500	Dec..	1891	.00¾
15	Belle Isle, s.	Nev..	10,000,000	100,000	100	230,271	Sept.	1893	.10	800,000	Dec..	1878	.25
16	Belcher, s. g.	Nev..	10,000,000	104,000	100	3,262,900	Nov.	1892	.20	15,397,000	April	1876	1.00
17	Bellevue, Idaho, s. L.	Idaho	1,250,000	125,000	10	120,000	Dec..	1889	.25	200,000	Jan..	1890	.10
18	Best Friend	Colo.	1,000,000	1,000,000	1	*	....	....	.....	90,000	Feb..	1892	.01
19	Bi-Metallic, m. g.	Mont.	5,000,000	200,000	25	.....	....	....	.....	1,630,000	June	1893	.10
20	Bodie Con., g. I.	Cal..	10,000,000	100,000	100	714,990	July	1893	.15	1,602,572	April	1885	.50
21	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*	....	....	.....	520,000	June	1894	.15
22	Boston & Mont., c. s.	Mont.	3,125,000	125,000	25	*	....	....	.....	2,075,000	Nov..	1891	1.00
23	Brotherton, I.	Mich	2,000,000	80,000	25	.....	....	....	.....	120,000	Mar..	1893	.50
24	Bulwer, g.	Cal.	10,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct..	1892	.05
25	Bunker Hill & S.s.L.	Idaho	3,000,000	300,000	10	*	....	....	.....	150,000	Oct..	1888	.06
26	Caledonia, G.	Dak..	1,000,000	100,000	100	505,000	May.	1885	.15	192,000	Oct..	1890	.06¾
27	Calliope, s.	Colo..	1,000,000	1,000,000	.....	.....	.....	.....	.....	140,000	Jan..	1891	.00
28	Calumet & Hecla G	Mich.	2,500,000	100,000	25	1,200,000	.....	.....	.....	40,350,000	May.	1894	5 00
29	Centen'l-Eureka, s.L.	Utah.	1,500,000	30,000	50	30,000	Mar..	1888	1.00	765,000	Dec..	1893	1 00
30	Central, C.	Mich..	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1.00
31	Champion, g	Cali	340,000	34,000	10	150,000	.....	.....	.....	173,700	Apr..	1894	.10
32	Chrysolite, s. L.	Colo..	10,000,000	200,000	50	*	....	....	.....	1,650,000	Dec..	1884	.25
33	Clay County, G.	Colo..	300,000	300,000	1	*	....	....	.....	56,000	Nov..	1891	.02
34	Clinton Con., g	Cal..	5,000,000	100,000	5	.....	....	....	.....	80,000	Nov..	1891	.10
35	Cœur D'Alene, s. L.	Idaho	5,000,000	500,000	10	.....	....	....	.....	340,000	June	1893	.03
36	Colorado Central, s. L.	Colo..	2,750,000	275,000	10	*	....	....	.....	502,661	April	1893	.05
37	Commonwealth, s.	Nev..	10,000,000	100,000	100	200,000	Nov.	1893	.10	30,000	Nov..	1890	.20
38	Confidence, s. L.	Nev..	2,496,000	24,960	100	1,389,550	Aug..	1892	.50	199,680	April	1889	1.00
39	Cons. Cal. & Va., s.&	Nev..	21,600,000	216,000	100	216,000	Dec..	1892	.50	3,682,800	Aug.	1891	.50
40	Contention, s.	Ariz.	12,500,000	250,000	50	.....	....	....	.....	2,637,500	Aug.	1892	.20
41	Cook's Peak, s.	N. M..	2,000,000	200,000	10	.....	....	....	.....	119,532	Nov.	1892	.06
42	Cop. Queen Con., c.	Ariz.	2,000,000	200,000	10	.....	....	....	.....	1,660,000	May..	1894	.25
43	Coptis	Nev.	10,000,000	100,000	100	.....	....	....	.....	67,000	July..	1892	.12
44	Cortez, s.	Nev..	1,500,000	300,000	05	*	....	....	.....	687,000	Mar.	1892	.50
45	Crescent, s. L. G.	Utah.	15,000,000	600,000	25	60,000	Oct	1892	.10	238,000	Oct..	1888	.06
46	Crown Point, G. s.	Nev..	10,000,000	100,000	100	2,750,000	June	1893	.25	17,898,000	Jan	1875	.00
47	Daly, s. L	Utah.	3,000,000	150,000	20	*	....	....	.....	2,850,000	May..	1893	.25
48	Deadwood-Terra, G.	Dak..	5,000,000	200,000	25	*	....	....	.....	1,140,000	Sept	1892	.05
49	Delamar, G s	Idaho	2,000,000	400,000	25	.....	....	....	.....	1,330,000	April	1894	.50
50	Derbec B. Grav., G.	Cal..	10,000,000	100,000	100	100,000	Sept.	1892	.10	265,000	Mar	1894	.05
51	Dexter, g. s	Nev.	1,000,000	100,000	10	*	....	....	.....	105,000	July	1893	.25
52	Elkhorn, s.	Mont.	1,000,000	200,000	5	*	....	....	.....	1,261,000	Mar.	1894	.18
53	Enterprise, s.	Colo..	2,500,000	500,000	5	*	....	....	.....	850,000	June	1893	.25
54	Eureka Con., s. L. G.	Nev..	1,000,000	50,000	100	550,000	June	1889	.50	5,112,500	Jan.	1892	.25
55	Evening Star, s. L.	Colo..	500,000	50,000	10	*	....	....	.....	1,437,500	Dec.	1889	.25
56	Father de Smet, G.	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
57	Franklin, c.	Mich..	1,000,000	40,000	25	220,000	June	1871	.....	1,240,000	Dec..	1893	2.00
58	Glengarry	Mont.	1,000,000	100,000	10	.....	....	....	.....	10,000	June	1891	.10
59	Golden Reward. .	S.Dak	1,250,000	250,000	5	.....	....	....	.....	85,000	April	1893	.02
60	Gould & Curry, s. G.	Nev..	10,300,000	108,000	100	4,688,400	Oct..	1893	.10	3,826,800	Oct..	1870	10.00
61	Grand Prize, s.	Nev..	10,000,000	100,000	100	785,000	Jan..	1890	.30	495,000	Mar.	1884	.25
62	Granite Mountain, s.	Mont.	10,000,000	400,000	25	.....	....	....	.....	12,120,000	July.	1892	.20
63	Great Western, L. Q.	Cal..	5,000,000	50,000	100	.....	....	....	.....	398,366	Nov.	1893	.25
64	Hale & Norcross, G. s.	Nev..	11,200,000	112,000	100	5,646,800	June	1893	.50	1,822,000	Aug	1888	.50
65	Hecla Con., s. & L. C.	Mont.	1,500,000	30,000	50	*	....	....	.....	2,055,000	Sept.	1893	.50
66	Hel'a Mg. & Red. s.L.C.	Mont.	3,515,000	468,000	5	*	....	....	.....	197,970	July.	1896	.06
67	Helena & Frisco, s.L.	Idaho	2,500,000	500,000	5	.....	....	....	.....	170,000	July.	891	.02
68	Helena & Victor.	Mont.	1,000,000	200,000	5	.....	....	....	.....	80,000	May.	1892	.05
69	¶ Holmes, s.	Nev..	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	Apr.	1892	.25
70	Homestake, G.	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,156,250	Apr.	1894	.15
71	Hope, s.	Mont.	1,000,000	100,000	10	*	....	....	.....	583,230	Mar.	1894	.25
72	Horn-Silver, s. L.	Utah	10,000,000	100,000	100	*	....	....	.....	4,930,000	Mar	1894	.12½
73	Idaho, s.	Cal.	310,000	3,100	100	.....	....	....	.....	5,489,000	Sept.	1893	2.50
74	Illinois, s.	N. M..	100,000	100,000	1	*	....	....	.....	45,000	April	1889	.20
75	Iron Mountain, s.	Mont.	5,000,000	500,000	10	*	....	....	.....	265,000	Feb..	1894	.02
76	Iron-Silver, s. L.	Colo..	5,000,000	250,000	20	*	....	....	.....	2,500,000	April	1889	.30
77	Jackson, G. s	Nev..	5,000,000	50,000	100	247,500	Mar.	1893	.20	80,000	Jan.	1891	.10
78	Kearsarge, C.	Mich.	1,000,000	40,000	25	190,000	Oct.	1887	1.00	80,000	Jan.	1890	2.00
79	Kennedy	Cal..	10,000,000	100,000	100	.....	....	....	.....	1,266,000	Apr..	1894	.45
80	Kentuck, s. G.	Nev..	3,000,000	30,000	100	454,180	Oct..	1891	.15	1,350,000	Dec.	1886	.10
81	Leadville Con., s. L.	Colo..	4,000,000	400,000	10	*	....	....	.....	516,000	Feb..	1892	.05
82	Lexington, G. s.	Mont.	4,000,000	40,000	100	*	....	....	.....	662,200	July.	1893	.30
83	Little Chief, s. L.	Colo..	10,000,000	200,000	50	*	....	....	.....	820,000	Dec..	1890	.05
84	Maid of Erin	Colo..	3,000,000	600,000	5	.....	....	....	.....	708,900	April	1893	.25
85	Mammoth, s. L. C.	Utah	10,000,000	400,000	250	110,000	.....	1882	.25	1,040,000	Dec..	1891	.10
86	Maxfield	Utah.	3,000,000	300,000	10	.....	....	....	.....	117,000	April	1892	.03
87	Mayflower, D. gravel	Cal..	1,200,000	60,000	20	.....	....	....	.....	179,000	Apr..	1894	.10
88	May Mascopa, s. L.	Colo..	1,000,000	100,000	10	*	....	....	.....	205,000	Oct..	1891	.00¾
89	Minas Prietas, G. s.	Mex..	1,000,000	100,000	10	*	....	....	.....	350,000	Dec..	1890	.50
90	Minnesota, C.	Mich.	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar.	1876	.....
91	Minnesota Iron, I.	Minn.	16,500,000	165,000	100	*	....	....	.....	2,745,000	April	1893	1.50
92	Mollie Gibson, s.	Colo..	5 000,000	1,000,000	5	*	....	....	.....	3,930,000	Dec..	1893	.05
93	Monitor, G.	S.Dak	2,500,000	250,000	10	*	....	....	.....	45,000	Oct..	1890	.03
94	Mono, g.	Cal.	5,000,000	50,000	100	797,500	Feb..	1893	.25	12,500	Mar	1886	.25
95	Montana, Lt., G. s.	Mont.	3,300,000	660,000	5	*	....	....	.....	2,619,075	June.	1891	12½
96	Morning Star, s. L.	Colo.	1,000,000	100,000	10	.....	....	....	.....	1,025,000	Dec..	1891	.25
97	Morning Star Drift, g	Cal...	240,000	2,400	100	*	....	....	.....	213,800	Apr..	1894	4.00
98	Moulton, s. G.	Mont.	2,000,000	400,000	5	*	....	....	.....	410,000	Nov.	1892	.07½
99	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	137,500	June	1890	2.00	225,000	Nov	1893	.30
100	Napa, Q.	Cal.	700,000	100,000	7	.....	....	....	.....	630,000	April	1894	.10
101	Navajo, G. s.	Nev..	10,000,000	100,000	100	538,714	Sept.	1893	.10	226,111	April	1889	.10
102	New Guston, s.	Colo..	550,000	110,000	5	.....	....	....	.....	1,877,500	April	1892	.75
103	North Banner Con	Cal...	1,000,000	100,000	10	.....	....	....	.....	20,000	July..	1891	.05
104	North Commow'th	Nev..	10,000,000	100,000	10	90,000	Jan.	1893	.10	25,000	June.	1891	.25
105	N. Hoover Hill, G. s.	N. C	300,000	120,000	20	*	....	....	.....	30,000	Dec..	1895	.06¾
106	North Belle Isle, s.	Nev..	10,000,000	100,000	100	518,075	April	1893	.10	230,000	May	1893	.50
107	North Star, G.	Cal..	1,000,000	100,000	10	20,000	.....	1885	.02	450,000	June	1893	.50
108	Omaha Cons., G.	Cal...	2,400,000	24,000	100	.....	....	....	.....	86,400	Apr..	1894	.15
109	Ontario, s. L.	Utah	15,000,000	150,000	100	.....	....	....	.....	13,175,000	Oct..	1892	.50
110	Ophir, G. s.	Nev..	10,000,000	100,000	100	4,391,040	July	1893	.25	1,695,800	Jan..	1893	1.00
111	Original, s. C.	Mont.	1,800,000	60,000	25	*	....	....	.....	138,000	Jan.	1893	.05
112	Oro, s. L. G.	Colo..	500,000	100,000	5	.....	....	....	.....	95,000	July.	1890	.20
113	Osceola, C.	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,847,500	Dec..	1892	1.00
114	Pacific Coast, s.	Cal...	1,500,000	15,000	100	.....	....	....	.....	422,500	July.	1893	1.00
115	Parrott, C.	Mont.	1,800,000	180,000	10	*	....	....	.....	1,569,000	June	1893	.10
116	Petro	Utah.	10,000,000	10,025	100	.....	....	....	.....	17,500	July..	1891	.75
117	Plumas Eureka, G.	Cal..	1,406,250	140,600	10	.....	....	....	.....	2,696,295	Oct..	1893	.18
118	Plymouth Con, G.	Cal..	5,000,000	100,000	50	*	....	....	.....	2,280,000	Feb.	1888	.40
119	Poorman, G. s	Idaho	375,000	300,000	125	.....	....	....	.....	68,280	Sept.	1892	.....
120	Quicksilver, pref., Q	Cal...	4,300,000	43,000	100	.....	....	....	.....	1,825,911	June	1891	1.25
121	" com., Q	Cal...	5,700,000	57,000	100	.....	....	....	.....	985,367	July.	1892	.40
122	Quincy, C.	Mich..	1,250,000	50,000	25	200,000	Dec..	1862	.....	6,870,000	Feb..	1894	3.00
123	Red Cloud	Idaho	1,000,000	200,000	5	*	....	....	.....	193,000	Dec.	1892	.10
124	Reed National, s. G.	Colo..	500,000	500,000	1	*	....	....	.....	50,000	Dec..	1890	.01
125	Retriever, L.	S.Dak	1,250,000	250,000	5	*	....	....	.....	20,000	Aug..	1891	.03
126	Rialto, s.	Colo..	300,000	300,000	1	*	....	....	.....	90,250	April	1893	.01¼
127	Richmond, s. L.	Nev..	1,350,000	54,000	25	*	....	....	.....	4,359,387	Oct..	1893	.25
128	Rico-Aspen	Colo..	5,000,000	1,000,000	5	.....	....	....	.....	175,000	May.	1894	.02½
129	Ridge, C.	Mich..	1,250,000	50,000	25	219,939	Mar.	1886	50	99,785	Feb.	1880	.50
130	Robinson Con., s. L.	Colo..	10,900,000	200,000	50	.....	....	....	.....	985,000	Mar.	886	.05
131	Savage, s.	Nev..	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1893	3.00
132	Sierra Buttes, G.	Cal...	2,225,000	125,500	10	.....	....	....	.....	1,559,333	Oct..	1893	.12½
133	Sierra Nevada, s. G.	Nev..	10,000,000	100,000	100	6,521,910	Aug	1893	.30	102,000	Jan.	1871	1.00
134	Silver Cord, s. L. G.	Colo..	4,500,000	450,000	10	.....	....	....	.....	265,000	April	1889	.10
135	Silver King, s.	Ariz.	10,000,000	100,000	100	97,479	Aug..	1892	.25	1,950,000	July	1887	.25
136	Silver Mg.of L. V., s.L.	N. M..	500,000	500,000	1	*	....	....	.....	300,000	Dec..	1891	4.00
137	Small Hopes Con., s.	Colo.	5,000,000	250,000	20	*	....	....	.....	3,225,000	Oct..	1893	.10
138	Standard, G. s.	Cal...	10,000,000	100,000	100	100,000	June	1890	.50	3,731,159	May	1894	.10
139	Swansea, g. s.	Colo..	600,000	60,000	10	.....	....	....	.....	39,000	Sept.	1893	.10
140	Tamarack, C.	Mich..	1,250,000	50,000	25	520,000	April	1885	3.00	3,670,000	Dec.	1893	4.00
141	Tombstone, G. L.	Ariz.	12,500,000	300,000	25	*	....	....	.....	1,250,000	April	1892	.10
142	Trinity Riv'r Hydr., G	Colo..	500,000	500,000	1	*	....	....	.....	37,500	Apr..	1894	.00½
143	United Verde, C.	Ariz.	3,000,000	300,000	10	*	....	....	.....	207,500	Jan..	1892	.10
144	Victor, G	Colo.	1,000,000	200,000	5	.....	....	....	.....	150,000	Feb.	1894	.07½
145	Ward Con., s.	Colo.	2,000,000	200,000	10	.....	....	....	.....	20,000	Dec.	1889	.05
146	W. Y. O. D	Cal..	60,000	30,000	2	22,500	May.	1891	.10	69,000	Apr.	1894	.10
147	Yankee Girl, s.	Colo.	1,300,000	260,000	5	.....	....	....	.....	1,406,000	Sept.	1893	1.50
148	Yellow Jacket, G. s.	Nev.	12,000,000	120,000	100	5,556 000	July.	1893	.25	2,184,000	Aug..	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Assessments. Date and am't of last.		
1	Alliance, s. G.	Utah	$100,000	100,000	$1	$120,000	Feb..	1891	.10
2	Allouez, C.	Mich.	2,000,000	80,000	25	1,424,937	Oct..	1891	.10
3	Alpha Con., G. s.	Nev..	3,000,000	30,000	100	309,000	Sept.	1892	.10
4	Alta, s.	Nev..	10,080,000	100,800	100	3,369,880	Jan.	1892	.10
5	American Flag, s.	Colo.	1,250,000	125,000	1	300,000	June	1887	....
6	Anchor, s. L. G.	Utah.	3,000,000	150,000	5	560,000	July.	1893	.2
7	Barcelona, G.	Nev..	5,000,000	300,000	5	*	....	....	....
8	Belmont, G.	Cal..	500,000	500,000	100	*	....	....	....
9	Belmont, s.	Nev..	5,000,000	50,000	100	735,000	April	1894	.10
10	Best & Belcher, s. G.	Nev..	10,080,000	100,800	10	2,405,275	Aug..	1892	.25
11	Black Oak, G.	Cal..	3,000,000	300,000	10	*	....	....	....
12	Brownlow, G.	Colo..	250,000	250,000	1	.....	....	....	....
13	Brunswick, G.	Cal..	2,000,000	400,000	5	.....	....	....	....
14	Bullion, s. G.	Nev.	10,000,000	100,000	100	2,800,000	Aug.	1892	.25
15	Butte & Boston, c. s.	Mont.	5,000,000	200,000	10	.....	....	....	....
16	Butte Queen, G.	Cal...	1,000,000	100,000	5	6,000	Jan..	1892	.04
17	Casaveras, G.	Cal..	500,000	500,000	1	.....	....	....	....
18	Calaveras Con., g.	Cal..	800,000	160,000	10	.....	....	....	....
19	California, G.	Cal..	1,000,000	100,000	5	9,000	Mar.	1892	.03
20	California Con. L. Q.	Cal..	2,250,000	450,000	10	.....	....	....	....
21	Challenge Con., g. s.	Nev..	5,000,000	50,000	10	.....	....	....	....
22	Chaviar, s. G.	Nev..	11,200,000	112,000	2	1,820,000	May.	1893	.50
23	Colchis, s. G.	N. M.	500,000	150,000	5	.....	....	....	....
24	Colorado, s.	Colo..	1,625,000	325,000	.....	.....	....	....	....
25	Comstock, s.	Utah.	1,250,000	250,000	100	.....	....	....	....
26	Comstock Tun.	Nev..	10,000,000	100,000	100	35,000	Mar	1887	.10
27	Con. Imperial, G. s.	Cal..	500,000	50,000	50	2,062,500	Jan..	1892	25
28	Con. New York, g. s.	Nev.	5,000,000	100,000	100	110,000	Mar.	1892	10
29	Con. Pacific, G.	Cal	6,000,000	60,000	10	195,000	June	1890	.10
30	Crescent, s. L.	Colo.	3,000,000	300,000	100	*	....	....	....
31	Crocker, s.	Ariz.	10,000,000	100,000	1	165,000	Aug	1892	05
32	Crowell, G.	N. C..	500,000	500,000	.....	.....	....	....	....
33	Dahlonega, G	Ga....	250,000	250,000	10	.....	....	....	....
34	Decatur, s	Colo..	1,500,000	300,000	.....	.....	....	....	....
35	Denver City s.	Colo..	5,000,000	500,000	11	*	....	....	....
36	Denver Gold, G.	Colo.	300,000	60,000	5	.....	....	....	....
37	Dickens-Custer, s.	Idaho	2,100,000	420,000	5	.....	....	....	....
38	Durango, G.	Colo..	500,000	500,000	1	*	....	....	....
39	El Dorado, G.	Cal..	1,000,000	250,000	4	*	....	....	....
40	Emma, s	Utah.	625,000	500,000	125	.....	....	....	....
41	Emmons, s. L.	Colo..	2,000,000	2,000,000	1	.....	....	....	....
42	Empire, s.	Utah.	10,000,000	100,000	100	.....	....	....	....
43	Eureka Tunnel, s. L.	Nev..	10,000,000	100,000	100	*	....	....	....
44	Exchequer, s. G.	Nev..	10,000,000	100,000	100	940,000	Jan..	1892	.25
45	Found Treasure, G. s.	Nev..	10,000,000	100,000	100	130,500	Jan..	1892	.50
46	Gogebic I. Syn., I.	Wis.	5,000,000	200,000	25	*	....	....	....
47	Gold Cup, s.	Colo.	500,000	500,000	1	*	....	....	....
48	Golden Era, s.	Mont.	1,900,000	200,000	10	*	....	....	....
49	Gold Flat, G.	Cal..	1,000,000	100,000	10	5,000	Mar..	1892	.03
50	Gold Rock, c.	Cal..	1,000,000	500,000	2	.....	....	....	....
51	Golden FeatherCu., G	Cal..	900,000	180,000	5	.....	....	....	....
52	Goodyear G. s. L.	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01
53	Grand Duke, s.	Colo.	800,000	80,000	10	.....	....	....	....
54	Gregory Con., G.	Mont.	3,000,000	300,000	10	.....	....	....	....
55	Harlem M. & M. Co., G.	Cal..	1,000,000	200,000	5	.....	....	....	....
56	Hartery Con., G.	Cal..	1,000,000	100,000	10	22,000	Oct..	1890	.05
57	Hartshorn, g. s. l.	S.Dak	1,250,000	250,000	5	8 750	Sept.	1891	.00¼
58	Head Cent. & Tr., s. G	Ariz.	10,000,000	100,000	100	16,981	Mar..	1892	.08
59	Hector, G.	Cal..	1,500,000	300,000	5	45,000	Jan..	1889	.1
60	Himalaya, g. s l.	Utah.	1,800,000	80,000	10	12,800	Oct..	1892	.00¼
61	Hollywood.	Cal..	200,000	100,000	2	.....	....	....	....
62	Huron, C.	Mich.	1,000,000	40,000	25	280,000	May.	1887	3.00
63	Idaho, G. s	Idaho	1,250,000	250,000	5	.....	....	....	....
64	Ingalls, g	Colo..	100,000	20,000	5	.....	....	....	....
65	Ironton, I.	Wis..	1,000,000	40,000	25	.....	....	....	....
66	Iroquois, s.	Mich.	1,250,000	50,000	25	.....	....	....	....
67	Kentuck Con.	Nev..	10,500,000	105,000	00	57,750	July	1892	.10
68	Julia Con., G. s.	Nev..	11,000,000	110,000	100	1,463,000	Jan..	1889	.10
69	Justice, g. s. C.	Colo.	500,000	500,000	1	*	....	....	....
70	Lacrosse, G.	Colo..	1,000,000	100,000	10	*	....	....	....
71	Little Josephine, s.	Colo..	250,000	50,000	5	.....	....	....	....
72	Lone Star Cons., G.	Colo..	500,000	500,000	1	10,000	April	1892	.00¼
73	Madeleine, G. s. L.	Colo..	750,000	50,000	1	4,500	Feb.	1892	.00¼
74	Mammoth Gold, G.	Ariz.	2,500,000	500,000	5	*	....	....	....
75	Mayflower Gravel, G.	Cal..	1,000,000	100,000	10	*	....	....	....
76	Mexican, G. s.	Nev..	10,000,000	100,000	100	2,917,560	ct..	1892	.30
77	Michigan, g. s.	Mich.	2,500,000	100,000	25	40,000	Mar..	1892	.....
78	Mike & Starr, s. C.	Colo..	1,000,000	200,000	5	*	....	....	....
79	Milwaukee, s.	Mont.	500,000	500,000	1	*	....	....	....
80	Modoc Chief, I. s. g.	Idaho	1,000,000	200,000	5	5,000	Jan.	1892	.00¼
81	Monitor, G.	Colo.	100,000	100,000	1	12,500	May.	1891	.01
82	Montreal, c. s. L.	Utah	750,000	150,000	5	4,500	Feb..	1892	.00¼
83	Mutual Mg. & Sm.	Wash.

COLORADO.

Aspen.	May 31. Price.
Argentum-Juniata	$0.52
Aspen Contact	.38
Aspen Deep Mining	.01½
Best Friend	.06
Bi-Metallic	.05
Bushwacker	.11
Della S.	.85
Gold Valley Placer	—
Little Annie	.04½
Mollie Gibson	1 27½
Pontiac	.04
Smuggler	—
St. Joe & Mineral Farm	04½
U. S. Paymaster	—

Colorado Springs.

Prices and sales for the week ending May 31st, 1894:

Cripple Creek (gold):	High.*	Low.*
Alamo	.01¼	.01⅛
Anaconda Gold	.25¼	.24
Anchoria-Leland	.09⅛	.09⅛
Aola	.02¼	.02⅛
Argentum Juniata	.65	.60
Bankers	.05¾	.05½
Blue Bell	.02	.01⅞
Calumet	.02	.01¾
Columbine	.01¾	.01¼
Cripple Creek Con	.02⅞	.02¾
Creede & Cripple C.	.01⅝	.01½
Elkton	.65	.62½
Free Coinage	.04	.03¾
Gold and Globe	.05⅛	.05⅜
Gold King	.11	.10¾
Golden Dale	.00¾	.00½
Goldstone	.00¾	.00⅝
Gold Standard	.03½	.03
Gould	.07⅛	.07
Granite Hill	.03¾	.03¾
Isabella	.15	.14½
Jack Pot	.02⅛	.02
Lembi	.29	.29
Lottie Gibson	.02	.01⅞
Mollie Gibson	1.27½	1.25
Moose	.67½	.65
Mt. Rosa	.06¾	.06¼
Ophir	.04⅞	.04¾
Orphan Bell	.05	.04
Pharmacist	.10	.09¾
Ramona	.04¼	.04
St. Joe and Mineral Farm	.05¾	.05
Summit M. & M.Co.	.13¾	.13½
Union	.23¾	.22½
Virginia M.	.03¼	.03
Work	.03¾	.03½
World	.0 ⅝	.02¾

* These represent the highest and lowest prices at which the various stocks were sold during the week ending May 31st.

PENNSYLVANIA.

Pittsburg. June 7.

	Bid.	Asked.
Allegheny County Light	80	....
Bridgewater Gas	48	....
Chartiers Valley Gas	12	....
Manufacturers' Gas	33	....
Nat. Gas Co. of W. Va.	25	....
Olive Valley Gas	23	....
People's Nat. Gas	25	....
People's Pipeage Co	....	14½
Penn Gas	....	10
Philadelphia Co	20⅝	20⅞
Pittsburg Gas Co	77¾	....
Wheeling Gas	18½	19
Fisher Oil	50	....
Hazlewood Oil Co	10	....
Tuna Oil	7	15
Chartiers Block Coal	35	....
N. Y. & Cleve. Gas Coal	....	48½
Monongahela Nav. Co.	67½	70
Monongahela Water	30¾	....
Lu ter Mining Co	11½	....
Pittsb. Plate Glass Co	125	145
Stand. Underg. Cable Co.	93¾	93½
U. S. Glass Co., pref	....	91¼
" " common	....	26
Westinghouse Air Brake	122	123¼
Westingh'se Elect., 1st prf	51½	53
" " 2d "	35	37
" " com	....	25

MISSOURI.

St. Louis. June 5.

Closing quotations:	Bid.	Asked.
Adams	$0.40	....
American & Nettie, Colo	.25	$0.30
Bi-Metallic, Mont	2.10	3.00
Elizabeth, Mont	.15	.20
Granite Mountain, Mont	1.25	1.75
Hope	....	2.50
Leo	.01½	.02
Small Hopes	....	.50

MONTANA.

Helena.

(Specially Reported by S. K. Davis.)
Stock quotations week ending May 31.

	Bid	Asked.
Bald Butte (Mont.)	$4.25	$5.00
Benton Group (Neihart), Mont.	....	.25
Combination (Phillips'g), Mont	.30	.50
Helena & Frisco	....	1.50
Helena & Victor, Mont	....	.25
Iron Mountain (Missoula), Mont	.40	.50
Piegan (Marysville), Mont	.35	.50
Poorman (Cœur d'Alene), Idaho	.25	.50
Whitlach Union & MacIntyre	....	.25

MINNESOTA.

Duluth. June 5.

LISTED STOCKS.

	Par.	Bid.	Asked.
Biwabik M. Iron Co	100	$20.00	$21.00
Cincinnatt Iron Co	25	.25	.30
Clark Iron Co	100	....	.60
Great Northern Min. Co.	100	2.75	3.50
Kanawha Iron Co	100	.10	.20
Keystone Iron Co	....	....	.40
Lake Superior Iron Co	25	....	2.50
Lincoln Iron Co	....	....	.50
Mesaba Moun. Iron Co.	100	14.00	17.00
Minneapolis Iron Co	100	.02	.15
Mountain Iron Co	100	50.00	65.00
Shaw Iron Co	100	2.50	3.00
Security Land & Exp. Co.	10	10.00	15.00

UNLISTED STOCKS.

Adams Iron Co	10	$7.00	$9.00
Ashland Iron Co	25	....	40.00
Buckeye Iron Co	100	....	2.50
Buffalo Land & Exp. Co.	1	....	.50
Chandler Iron Co	25	20.00	25.00
Charleston Iron Co	100	.15	.30
Cleveland Cliffs Iron Co.	100	20.00	40.00
Chicago Iron Co	100	.20	.30
Detroit Iron Co	25	.01	.02
Elmira Land & Iron Co.	100	.05	.25
Great Western Mining Co.	100	1.90	2.25
Homestead Iron Co	25	.00½	.02
Internat'l Development	10	....	22.50
Jackson Iron Co	25	....	60.00
Lake Supr. (Marquette)	25	20.00	27.00
McCaskill Mining Co.	10	.01	.03
Mesaba C., L. & Ex. Co.	10	....	6.00
Mesaba Chief Iron Co.	100	1.75	2.00
Mesaba Iron Co.	30	....	.20
Metropolitan L. & L. Co.	25	50.00	70.00
Northern Light Iron Co.	100	....	.25
Ohio Mining Co.	100	5.00	8.00
Ophir, gold	10	....	1.00
Penn. Iron & Steel Co.	100	.04	.10
Pioneer Iron Co.	25	....	1.00
Pittsburg & Lake A. Co.	100	110.00	125.00
Putnam Iron Co.	100	....	.80

FOREIGN.

Shanghai, China.

May 3, 1894.

(Special Report by J. H. Bisset & Co.).

	Taels.
Sheridan Con., Colo	2.50
Punjom Mining, Ltd	5.29
" Pref	1 46
Jelebu Mg. & Trading, Ltd	4.20
Raub A'lian G. Mg., Ltd	3.72
Shanghai Gas Co	217 50
Hong Kong Electric Co	3.36

Paris, France. May 25.

	Francs.
Acieries de Creusot	2,158 00
" de France	810.00
" de la Marine	920.00
" de St. Etienne	1,230.00
Aguas Tenidas	585 00
Anzin (coal)	1,500.00
Belmez, Spain	665.00
Callao	24.50
Callao Bis	....
Carmaux	1,175.00
Champd'Or	35.75
De Beers Consolidated	428.50
Dombrowa	625 00
Firmany	1,775.00
Golden River, Cal	130.00
" parts	30.00
Huanchaca	120.00
Jerez-Lantaira	20.00
" " parts	5 00
Kebao	530 00
Laurium, Greece	561.00
Lexington, Mont	42 00
" parts	0 80
Malfidano	1,530.00
Mokta-el-Hadid	800.00
Nickel New Caledonia	440.00
Ouro Preto	....
Phosphates de France	412.50
Placers Haute Italie	48 75
Pontgibaud	230.00
Rio Tinto, Spain	371.25
" obligs	507 50
Soufres Romaines	195 00
Tharsis, Spain	114.00
Transvaal Coal	17.50
Uruguay	25.00
" rights	20.00
Vieille-Montagne, Belgium	467.50

ASSESSMENTS.

COMPANY.	No.	Dlnqt. in office.	Day of sale.	Amt. per sh're
B.& Belch, Nev	56	June 5	June 26	.25
Cr'wn Pt., Nev	61	May 28	June 18	.25
Exchequer, Nev	37	June 14	July 2	.10
Golden Pr., Nev	6	May 26	June 23	.25
Gray Eagle, Cal	36	May 29	June 19	.03
Hale & Norcross, Nev	105	June 5	June 28	.26
Kent'k C., Nev.	9	June 14	July 3	.10
Ophir, Nev.	62	June 6	June 26	.25
Pine Hill, Cal.	4	May 19	June 9	.05
Silv. K'g, Ariz.	10	June 11	July 9	.20

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, chem. pure .17@.19
Commercial, in bbls. and cbys. .01¼@.02
Carbonic, liquefied, ℔ lb. .18@.25
Chromic, chem. pure, ℔ lb. 1.00
for batteries .40
Hydrobromic, dilute, U. S. P. .25@.30
Hydrocyanic, U. S. P. .45@.50
Hydrofluoric .2@.30
Alcohol—95%, ℔ gall. $2.30@$2.40
Absolute $3.80
Ammoniated $2.80
Alum—Lump, ℔ cwt. $1.75@$1.85
Ground, ℔ cwt. $1.85@$1.90
Powdered, ℔ lb. .04¼@.05
Lump ℔ ton, Liverpool .£5
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate, ℔ cwt. $1.90@$2.50
Ammonia—Sal., in bbl. lots, ℔ lb. .07¼@.08
Carbonate, ℔ lb., English and German, .07¼@.08
Muriate, white, in bbls., ℔ lb. .03¼
Aqua Ammonia—(in cbys) 3°, ℔ lb. .03@.04
20°, ℔ lb. .04@.05
26°, ℔ lb. .04¾@.05
Antimony—Oxymur, ℔ lb. .04@.06
Regulus, ℔ lb. .10@.11½
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. .03@.03¼
Red ℔ lb. .065@.07
Yellow .08@.09
White at Plymouth, ℔ ton $12 2 6
Asbestos—Canadian, ℔ ton .$50@$300
Italian, ℔ ton, c. i. f. L'pool .$18@$60
Ashes—Pot, 1st sorts, ℔ lb. 4.75@5
Pearl .05¾@.06¼
Asphaltum—
Prime Cuban, ℔ lb. .04@.05
Hard Cuban, ℔ ton .$25.00@$30.00
Trinidad, refined, ℔ ton .$30.00@$35.00
Egyptian and Syrian, ℔ lb. .05@.07¼
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton $15.00@$20.00
Barium—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb. .05@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. .05@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, ℔ lb. .06½@.07
Sulph., Am. prime white, ℔ ton $17.50@$19
Sulph., foreign, floated, ℔ ton .$21@$24
Sulph., off color, ℔ ton .$11.50@$15.00
Carb., lump, f. o. b. L'pool, ℔ ton .£6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " £3 15 0
Bauxite—℔ ton .$16.00
Bichromate of Potash—Scotch, ℔ lb. .11@.12
American, ℔ lb. .11@.12
Bichromate of Soda—℔ lb. .09½@.10
Borax—Refined, ℔ lb., in car lots .08@.09
San Francisco .08@.08½
Concentrated in car lots .07¼@.08
Refined, Liverpool ℔ ton .£6
Bromine—℔ lb. .25@.35
Cadmium Minium—℔ lb. .$2.00
Cadmium Iodide—℔ lb. .$5.50
Chalk—℔ ton .$1.50@$2.25
Precipitated, ℔ lb. .04@.06
China Clay—English, ℔ ton .$13@$18.00
Domestic, ℔ ton .$9@$11
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco .$10.00
Chromalum—Pure, ℔ lb. .35@.40
Commercial, ℔ lb. .02½
Cobalt—Oxide, ℔ lb. .$1.60@$1.70
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ordinary, ℔ lb. .03¼@.03¾
" extra .04½
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs. .85@.95
Best, ℔ 100 lbs. .$1.35@$1.50
Liverpool, ℔ ton, in casks .£2@£2 10s.
Corundum—Powdered, ℔ lb. .04¼@.09
Flour, ℔ lb. .03
Cryolite—Pow., ℔ lb., bbl. lots .07@.08
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02¼@.04
Epsom Salt—℔ lb. .01@.01½
Feldspar—Ground, ℔ ton .$6.00@$10.00
Crude .$2.00@$3.00
Fluorspar—Powdrd, No. 1, ℔ ton .$20@$30
Lump, at mine .$6@$8
French Chalk—
Fuller's Earth—Lump, ℔ ton. $16@$20
Glauber's Salt—in bbls., ℔ lb. .01@.01¼
Glass—Ground, ℔ lb .09@.10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. s. v., ℔ doz. $5.50
Chloride and sodium, ℔ oz. $6.00
15 gr., c. v., ℔ doz. $2.75
Oxide, ℔ oz. $27.25
Gypsum—Calcined, ℔ bbl. $1.25@$1.50
Land Plaster
Iodine—Resublimed, ℔ oz. .30@.33
Iridium—Oxide ℔ lb. .$90
Iron—Nitrate, 40°, ℔ lb. .01@.01¼
47°, ℔ lb. .02@.02¼
Kaolin—*See China Clay.*
Kieserite—℔ ton .$9@$10
Lead—Red, American, ℔ lb. .06¾@.07¼
White, American, in oil, ℔ lb. .06¾@.07¼
White, English, ℔ lb., in oil .08½@.08¾
Acetate, or sugar of, white .06@.06¼
Granulated
Nitrate .09@.12
Lime Acetate—Am. Brown .90@.95
" Gray .$1.75@$1.87½
Litharge—Powdered, ℔ lb. .05¼@.07¼
English flake, ℔ lb. .06@.06¼
Magnesite—Crude, ℔ ton of 1,015 kilos .$14.75
Calcined, ℔ ton of 2,240 lbs. .$22.00
Brick, ℔ ton of 2,240 lbs. .$47.50
Manganese—Ore, per unit .23@.28
Oxide, ground, ℔ lb. .02¼@.06¼
Mercuric Chloride—*(Corrosive Sublimate)* ℔ lb. .63@.64
Powdered ℔ lb. .65
Marble Dust—℔ bbl. .$1.25@$1.50
Metallic Paint—Brown ℔ ton. $20@$25
Red. $20@$25
Mica—In sheets according to size.
1st quality, ℔ lb. .25@$5.00
Mineral Wool—Ordinary slag .01¼
Ordinary rock .02¼
Ground, ℔ ton
Naphtha—Black .10@.15
Nitre Cake—℔ ton .$10.00
Ochre—Rochelle, ℔ lb. .01¼@01¾
Washed Nat Oxf'rd, Lump, ℔ lb. .06½@.06¾
Washed Nat Oxf'rd, Powder, ℔ lb. .07@.07½
Golden, ℔ lb. .03@.05
Domestic, ℔ ton .$12@$20
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .14@.16
Dark filtered, ℔ gal. .10@.13
Extra cold test, ℔ gal. .20@.24
Dark steam refined, ℔ gal. .07½@.19
Phosphorus—℔ lb. .5@.55
Precip., red, ℔ lb. .80@.85
white, ℔ lb. .85@.90
Platinic Chloride—Dry, ℔ oz. .$7
Plumbago—Ceylon, ℔ lb. .04@.06
American, ℔ lb. .05@ 07
Potassium—Cyanide, ℔ lb., C. P. 67%, ℔ lb. .50
mining. .28@.3
Bromide, domestic, ℔ lb. .28@.32
Chlorate, English, ℔ lb. .18@.18¼
Chlorate, powdered, English, ℔ lb. .18½@.19
Carbonate, ℔ lb., by casks, 82% .04½@.05
Caustic, ℔ lb., pure stick .05½@.06
Iodide, ℔ lb. .$2.58@$2.80
Nitrate, refined, ℔ lb. .06@.08
Bichromate, ℔ lb. .10@.11½
Yellow Prussiate, ℔ lb. .21½@.22½
Red Prussiate, ℔ lb. .39@.40
Pumice Stone—Select lumps, ℔ lb. .03½@.15
Original cks., ℔ lb. .01½@.02
Powdered, pure, ℔ lb. .01¼@.01¾
Pyrites—Non-cupreous, p. units .10@.11
Quartz—Ground, ℔ ton .$6.00@$10.00
Rotten Stone, Powdered, ℔ lb. .03¼@.03¾
Lump, ℔ lb. .06@.07
Original cks., ℔ lb. .04½@.05½
Rubbing stone, ℔ lb. .03½@.04
Sal Ammoniac—lump, in bbls., ℔ lb. .80
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton .$7@$7.5
Common, fine, ℔ ton .$4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton .$10.00@$15.00
Saltpeter—Crude, ℔ lb. .03¼@.04
Soapstone—Ground, ℔ ton .$6@$
Block and slab according to size.
Sodium—Prussiate, ℔ lb. .22@.24
Phosphate, ℔ lb. .04@.05
Stannate, ℔ lb. .06@.12
Tungstate, ℔ lb. .30@.35
Hyposulphite, ℔ cwt., in casks .$1.70@$1.80
Strontium—Nitrate, ℔ lb. .08½@.06
Sulphur—Roll, ℔ lb. .01¼@.02¼
Flour, ℔ lb. .01¾@.02
Sylvinit, 27@35%, S.O.P., per unit 3.75
Talc—Ground French, ℔ lb. .01¼@.01¾
American No. 1, ℔ lb. .01¼@.01¾
American No. 2 .¾@
Terra Alba—French, ℔ lb. .65@.80
English, ℔ lb. .65@.80
American, No. 1, ℔ lb. .@.80
American, No. 2, ℔ lb. .4@.50
Tin—Crystals, in kegs or bbls. .14@.15
feathered or flossed. .20
Muriate, single .07@.12
Double or strong, 54° B. .10@.15
Oxymur, or nitro .19
Vermillion—Imp. English, ℔ lb. .80
Am. quicksilver, bulk .57 @.59
Am. quicksilver, bags .58 @.60
Chinese .85 @$1.00
Trieste .90 @ .95
American .11½@ .13
Zinc White—Am., Dry, ℔ lb. .04½@ .06
Antwerp, Red Seal, ℔ lb. .06¼@.07
Paris, Red Seal, ℔ lb. .07½@.08
Muriate solution .06
Sulphate crystals, in bbls., ℔ lb. .03@.03¼

THE RARER METALS.

The prices given below are the prices in Germany, and are per gramme except where otherwise stated:

Arsenic (metallic), per kilo .$0.25
Barium (ex amalgam) .2.12
" (per electrol.) .7.75
Bismuth (metallic), per kilo .6.25
Cadmium (metallic), " .2.75
Calcium (per electrol.) .5.25
Cerium (pulv.) .2.25
" (fusum in globulis) .5.50
Chromium (fus.) .40
" (cryst.) .75
Cobalt (metallic), per kilo .10.00
" (pure), per kilo .40.00
Didymium (pulv.) .5.50
Erbium-Yttrium (oxydat.) .10.00
Gallium (cryst.) .100.00
Germanium (fus.) .37.50
" (pulv.) .35.00
Glucinum (pulv.) .7.00
" (cryst) .10.75
Indium .5.00
Iridium (fusum) .1.25
Lanthanum (pulv.) .6.00
" (per electrol.) .11.00
Lithium (in glob.) .5.00
" (wire) .6.25
Manganese (fusum) .25
Molybdenum (pulv.) .12½
Niobium (pulv.) .4.25
Osmium .1.00
Palladium (wire) ..06
" (pulv.) .1.00
Potassium (metal), per kilo .27.50
Rhodium .1.63
Ruthenium .2.50
Rubidium .6.25
Selenium (cryst.) .5
" (precipitates) .62½
Strontium (per electrol.) .7.25
" (ex amalgam) .3.25
Tantalum .4.75
Tellurium (fusum) .50
" (precipitate) .32½
Thallium .0.63
Titanium .1.25
Tungsten (pure) .05
Uranium .1.00
Vanadium .1.00

ALPHABETICAL INDEX TO ADVERTISERS.

— Indicates every other week or monthly advertisements.—

A

Abbott, Wheelock & Co. 34
Adams, W. H. 4
Advertising Rates. 33
Ætna Powder Co. 29
Aetna Foundry & Machine Co. 12
Ainsworth, Wm. 3
Aitcheson, R., Perf. Metal Co. 16
Allen, Chas. A. 12
Allis Co., Edw. P. 27
Allison Counon Co. 13
Alteneder, Theo., & Sons. 2
American Developing and Mg. Co. 21
American Metal Co. 20
American Zinc Lead Co. 31
Arms and Explosives 32
Armstrong Brothers. 9
Askew & Russell. 4
Atkins, J. L. 1
Atlantic Mining Co. 34
Atlas Cement Co. 1
Austen, Peter T. 20
Australian Mining Standard. 13

B

Babcock & Wilcox Co. 9
Bacon, E. C. 27
Baker & Adamson 3
Baker & Co 3
Balbach Smelting & Refining Co. 34
Baltimore Copper Works. 20
Bandeil, H. E —
Bath, Henry, & Son. 20
Becker, Christian. 3
Beckett Foundry & Machine Co. 28
Berge, J. & H. 3
Berlin Iron Bridge Co. 10
Berwind-White Coal Mining Co. 14
Bethlehem Iron Co. 10
Bieber & Sohne, F. D. 6
Billings, Robt., & Co. 6
Bishop, Victor & Co. 23
Blake, Geo F., Mfg. Co. —
Blake, T. A. 27
Blandy, John F. 4
Blauvelt, Harrington 4
Boggs, W. R., Jr. 4
Boss, Clarence M. 4
Boss, M. P. 4
Bostelman, Lewis F. 36
Boston & Montana Mining Co. 34
Boston Ore Machinery Co. 24
Brandis Sons Co 2
Brandt, Randolph. 21
Bristol Co. 1
Broderick & Bascom Rope Co. 16
Brodie, Walter M. 4
Brown Hoisting & Con'ing Mch. Co. 32
Buckeye Engine Co 9
Bucyrus Ste'm Shov'l & Dredge Co. 8 & 26
Bullionist, The 32
Bullock & Crenshaw 3
Bullock, M. C., Mfg. Co. 20
Burfeind, J. H. 4
Burleigh Rock Drill Co. 36
Burlingame, E. F. 4
Butte & Boston Mining Co. 31
Butters, Charles. 4

C

California Wire Works. 33
Cameron, A. S., Steam Pump W'ks. 12
Campbell-Johnston, R. C. 4
Canadian Copper Co. 20
Carnahan, F. W. 4
Carpenter, Franklin R. 4
Cary & Moore 20
Case, Wm. H. 4
Castner & Curran. 14
Cazin, Franz 4
Central Mining Co. 34
Chandler & Shapleigh. 4
Channing, J. Parke. 4
Chester Steel Castings Co —
Chrome Steel Works. 11
Clayton Air Compressor Works 1
Clement, Victor M. 4
Climax Fuse Co. 22
Cole, Geo. J., & Co. 6
Cole, Wm. E 15
Colliery Guardian. 14
Collins, J. H. & Sons. 4
Colorado Iron Works. 31
Columbian University 6
Compress Wheel Co 31
Consolidation Coal Co. 14
Contracts Open. 18
Cookson & Co. 34
Cooper, Hewitt & Co. 33
Copper Queen Con. Mg. Co.
Corcoran Scientific School. 6
Correspondence School of Mechanics and Industrial Sciences. 6
Courtis, Wm. M. 4
Cuxe Bros. & Co 14
Crawford, John S. 4
Crescent Steel Co 11

D

Darling Smelting & Ref. Co. 31
Davis, Floyd. 4
Davis, Lewis K. 4
De La Bouglise, Geo 4
Denver Fire Clay Co 2
Denver Tent & Awning Co. 3
Detroit Copper Mining Co 34
Dewey, Fred P. 4
Dewey-Walter Refining Co. 1
Dickerman, Alton L. 4
Dickinson, Henry P. 4
Dixon, Jos., Crucible Co. 16
Donald, J. T 4
Drysdale, Dr. W. A. 4

E

Eddy Valve Co 9
Ede & Hurwell. 4
Eimer & Amend 3
Electrical Plant & Electrical Industry. 32
El Minero Mexicano. 32
Engelhardt, E. C. 4
Engineering Employment Bureau. 18
Epping, Carpenter & Co. 12
Eureka Co. 34
Everette, Dr. W. E. 4
Exeter Machine Works. 31

F

Farrel Foundry & Machine Co. 32
Fearn, Percy L 4
Fibre Conduit Co. 13
Financial Times. 32
Fisk, W. W. 4
For Sale Advertisements. 19
Fraser & Chalmers. 25
Freeland, Francis T. 4
Freese, E. M. & Co. 2
Froehling, Dr. Henry 20
Frue Vanner Concentrator. 28
Furlonge, W. H. 4

G

Gagnier-Griffin Suspended Ry. Bdge. Co 22
Gates Iron Works. 32
Garden City Sand Co. 2
Garrison, A., Foundry Co. 11
General Electric Co. 30
Gold and Silver Extraction Co. 19
Golden Reef Mining Co. 19
Gooding, C. T. 4
Grant, E. R. 6
Griffith & Wedge Co. 24
Groetzinger, A., & Sons 11
Gurley, W & L. E. 20

H

Haddock, Shonk & Co. 14
Hahn, O. H. 4
Halse, E. 4
Hammond, John H 4
Hampton, Wm. Huntley 4
Handy & Harman. 6
Hardman, John E. 4
Harrington & King Perforat. Co. 1 & 20
Harrison Safety Boiler Works. 11
Hartford St'm Boiler Insp. & Ins. Co. 9
Harvard University. 6
Hasenzahl, W. 20
Hastings, John B. 20
Heil, Henry, Chemical Co. 3
Hendrick Mfg. Co. 16
Hendrie & Bolthoff Mfg. Co. 24
Hicks & Sprague. 6
Hiertz, T. & Son. 10
Hofmann, Ottokar 4
Holibaugh, J. R. 4
Holton Iron & Steel Roofing Co. 11
Hooker & Lawrence. 4
Hoskins, William
Hunt, C. W., Co.
Hunt & Robertson. 29

I

Ihne, F. W. 4
Illinois Smelting Co. 1
Indian Engineering. 2
Ingersoll-Sergeant Rock Drill Co. 3
Iron & Coal Trades Review. 3

J

James & Shakspeare. 20
Jeanesville Iron Works. 12
Jeffrey Manufacturing Co. 31
Jenkins Bros. 1
Jennings, E. P. 5
Johnson, Matthey & Co. 3
Jones & Jones.
Journal of the Asso. of Engineering Societies. —

K

Kansas City Sm. & Ref. Co. 35
Kearsarge Mining Co. 34
Keasbey, Robert A. 8
Kennedy, Julian. 5
Kent, Wm. 5
Kerr, Mark B. 5
Keyes, W. S 5
King & Andrews Co. 11
Kirby, Edmund B. 5
Knowles Steam Pump Works. 12
Krom, S. R. 25

L

Laflin & Rand Powder Co. 22
Lammers, T. L 5
Lands & Mines for Sale 19
Languth, Werner 5
Lau, J. H. & Co. 22
Lavagnino, G. 5
Lawrence Scientific School. 6
Ledoux & Co. 20
Leffel & Co., James. 16
Leggett, Thomas H. 5
Leschen, A., & Sons' Rope Co. 18
Lewisohn Bros. 20
Lexow, T. 23
Lloyd & Rigney. 5
Loring, Frank C. 5
Lunkenheimer Co. 9

M

Macbeth, Jas., & Co. 22
MacDonald, B 5
Machinery for Sale. 19
Mariner & Hoskins. 5
Martinez, Dion. 5
Maryland Coal Co. 14
Mason Regulator Co. 1
Mass. Institute of Technology. 6
Mathison Smelting Co. 34
Maynard, George W. 5
McCharles, A. 1
McDermott & Duffield. 5
McGowan, John H., Co. 12
McIndoe, Hugh 6
McKiernan, S. G. & Co. 36
Mechanical Gold Extractor Co 1
Mecklenburg Iron Works. 28
Merwin & Richardson. 5
Metallic Cap Mfg. Co. 22
Michigan Mining School. 6
Milton Mfg. Co. 35
Mineralized Rubber Co 21
Miners' Assay Office. 6
Minger, W. C. 5
Mining Journal. 9
Miscellaneous Wants. 19
Missouri School of Mines. 6
Mixer & DuBois. 5
Moore, Dr. Gideon E. 3
Moore, Samuel L., & Sons' Co. 27
Mueller Mfg. Co. 1
Mutual Life Insurance Co. 6

N

Newberry, W. E. 5
New Mexico Mining Exchange. 6
New York Belting & Packing Co., Ltd. 23
Newell Coal Co. 14
Nicholson, Frank. 5
Norwalk Iron Works Co. 1 & 23

O

Obermayer Co. 8
O'Brien, Frank. 5
Okonite Co., The, Ltd. —
Olcott, Eben E. 5
Ontonagon Miner, The. 31
Orford Copper Co. 20
Osceola Con. Mg. Co 34
Overland Machinery Co. 31
Overbrook Chemical Co. 3

P

Pacific Mining Agency & Trust Co. 24
Page, Wm. Byrd. 5
Peabody & Kolff. 6
Pearse, Arthur L. 5
Pencoyd Bridge & Const. Co. 11
Penn Smelting and Refining Co. 34
Penn Diamond Drill & Mfg. Co. 21
Pennsylvania Military College. 6
Pennsylvania Salt Mfg. Co. 2
Penrose & Barringer. 5
Peters, Edward D., Jr. 5
Phelps, Dodge & Co. 34
Phillips, Wm. B. 5
Phosphor-Bronze Smelting Co. 8
Picher Lead Co. 34
Pickhardt & Kuttroff 18
Pittsburg Bridge Co. 9
Pollock, Wm. B., & Co. 13
Poole, Robb., & Son Co. 27
Porter, H. K., & Co. 8
Porter, J. A. 5
Positions Vacant. 18
Potter, William B. 5
Potts, Frederick A., & Co. 14
Powell Co., The Wm. 12
Pratt & Whitney Co. 12
Pulsometer Steam Pump Co. 12

Q

Quebrada R. R. Land & Copper Co., Lt. 31
Queen & Co. 2

R

Racine Hardware Co. 9
Rand Drill Co. 36
Randolph, John C. F. 5
Raymond, R. M. 5
Raymond, Rossiter W. 5
Richards & Co. 3
Rickard, T. A. 5
Ricketts & Banks. 20
Robertson, E. C. 6
Roberts, A. & P., & Co 11
Robinson, G. H. 5
Robinson & Orr. 19
Roebling's, J. A., Sons Co. 16
Roessler & Hasslacher Chemical Co. —
Ropeways Syndicate, Ltd 32
Rose Polytechnic Institute. —
Rothwell, John E. 5 & 18
Rothwell, Richard P. 5
Russell Process Co. 1

S

Sargent, E. H., & Co. 3
St. Louis Sampling & Testing Works. 1
Scaife, William B., & Sons. 10
Schwarz, Theodore E. 5
Shapleigh, W. 4
Sheffield Car Co. 1
Shields & Middleton. 5
Shultz Belting Co 1
Simonds, Francis M. 20
Situations Wanted. 18
Skewes, Edward. 5
Smith, C. H., & Co. 6
Snow & Fiscus. 6
Solvay Process Co. 2
Souther John, & Co. 8
Southern Iron & Equipment Co. 19
Squire, J.
State Ore Sampling Co. 34
Stedman's Foundry & Machine Wks 30
Stearns Bros. 23
Stein, Walter M. 5
Stickney, Conyngham & Co. 14
Stieren, W. E. 2
Stilwell, Bierce & Smith-Vaille Co. 12 & 13
Stoiber, E. G. 5
Sullivan Machinery Co. 1 & 23

T

Tamarack, Jr., Mining Co. 34
Tamarack Mg. Co. 34
Taylor John, & Co. 3
Taylor & Brunton. 5
Terhune, Richard H. 5
Thies, Adolph. 5
Thomson-Houston International Co. 30
Totten & Hogg 28
Trenholm, Paul C. 6
Trent, L. C. 5
Trenton Iron Co. 33
Troemner, Henry 3
Truax Mfg. Co. 9
Tudor Boiler Mfg. Co. 9
Trier, W. S., Wire Works Co. 16

U

Union Iron Works 1 & 27
Unzicker, Hermann. 5

V

Van Slooten, Wm. 5
Victory Chemical Co. 34
Vulcan Iron Works —

W

Walburn-Swensen Mfg. Co 30
Walter Bros. 6
Wannemaker, J. F. 6
Ward & Clyphant. 14
Weber Gas & Gasoline Engine Co. 22
Webster, Camp & Lane Mach. Co. 24
White & Middleton. 22
Whitney, A., & Son —
Williams Bros. 16
Williams Mfg. Co. 11
Williamsport Wire Rope Co. 15
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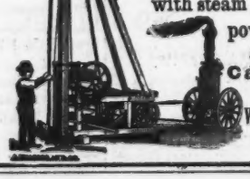

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Water Pressure Reducers
Mueller Mfg. Co.

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Bostelmann, L. F.
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Sullivan Machinery Co.
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Wheels, Car
Sheffield Car Co.

White Lead Machinery
Poole, R., & Son Co.

Wire Cloth
Aitcheson, R., Perf. Metal Co.
Harrington & King Perforating Co.
Tyler, W. S., Wire Works

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Abbott, Wheelock & Co.
Broderick & Bascom Rope Co.
California Wire Wks
Cooper, Hewitt & Co.
Hunt, C. W., Co.
Leschen, A., & Sons Rope Co.
Phelps, Dodge & Co.
Roebling, J. A., Sons & Co.
Ropeways Synd., Ltd.
Trenton Iron Co
Williamsport Wire Rope Co.

Wire Rope Tramway
Brown Hoist. & Convey. Machine Co.
California Wire Works.
Colorado Iron Works.
Cooper, Hewitt & Co.
Hunt, C. W., Co.
Roebling, J. A., Sons & Co.
Trenton Iron Co.
Vulcan Iron Works.

FREE ADVERTISING.

Inquiries from employers in want of Superintendents, Engineers, Metallurgists, Chemists, Mine or Furnace Foremen, or other assistance of this character, will be inserted in this column WITHOUT CHARGE, whether subscribers or not.

The labor and expense involved in ascertaining what positions are open, in gratuitously advertising them and in attending to the correspondence of applicants, are incurred in the interest and for the *exclusive* benefit of *subscribers* to the ENGINEERING AND MINING JOURNAL.

☞Applicants should inclose the necessary postage to insure the forwarding of their letters.

Positions Vacant.

1325 WANTED—A THOROUGHLY COMpetent master mechanic to take charge of the machinery of a copper mining and smelting concern in the Northwest. Apply, stating age, experience and references. Address letters MONT, ENGINEERING AND MINING JOURNAL.

1326 WANTED—FOREMAN MACHINIST —one who would appreciate an opportunity for advancement; sobriety and ability must be unquestioned; prefer one who has some knowledge of draughting and has had experience in the manufacturing of water-tube boilers; state age, nationality, wages desired and references. Address MACHINIST, ENGINEERING AND MINING JOURNAL.

1327 WANTED—A SALESMAN WELL acquainted with the steel trade, particularly in the Eastern States. Address STEEL TRADE, ENGINEERING AND MINING JOURNAL.

1328 WANTED — AN ANALYTICAL chemist thoroughly versed in the analysis of gold, silver, copper and lead ores. Applicant must be able to purchase at least $500 of the company's stock. A salary of $100 monthly is guaranteed to the right man for the first few months, with great chances for increase. Address COLORADO, ENGINEERING AND MINING JOURNAL.

1329 WANTED—AN ASSISTANT CHEMist and assayer in a shop refining precious metals. Address, stating age, experience, and wages expected, ASSISTANT, ENGINEERING AND MINING JOURNAL.

1330 WANTED—EXPERIENCED CHEMist for blast furnace. One willing to help in office preferred. Give experience, references, and full particulars. Address IVANHOE, ENGINEERING AND MINING JOURNAL.

1331 WANTED—A DRAUGHTSMAN who has had some experience in designing mining machinery, and who is a graduate of some good mechanical school. A permanent position for the right man. Address MECHANICAL, ENGINEERING AND MINING JOURNAL.

1332 WANTED—A MANAGER THOROughly familiar with the manufacture of alum. Address ALUM, ENGINEERING AND MINING JOURNAL.

1333 WANTED — EXPERIENCED CONtractors to join in sinking a deep shaft through wet ground. Must be able to command $100,000; very large profits can be made on the job. SHAFT, ENGINEERING AND MINING JOURNAL.

1334 WANTED — MINING ENGINEER and assayer, speaking and writing Spanish, for silver mines; salary $75. Address, with full particulars as to experience and references, ZACATEC, ENGINEERING AND MINING JOURNAL.

1335 WANTED—FIRST-CLASS ENGIneer for large steam plant. One familiar with both theory and practice. Answer with references and salary required, to PROCTOR, ENGINEERING AND MINING JOURNAL.

1336 THERE IS AN OPENING ON THE editorial staff of the ENGINEERING AND MINING JOURNAL. Preferably a mining engineer and metallurgist familiar with our Western mining districts, and who has had experience in reading exchanges and newspaper work. Address, stating experience and salary expected, STAFF, ENGINEERING AND MINING JOURNAL.

Situations Wanted.

Advertisements for SITUATIONS WANTED will be Charged only 10 cents a line.

A COMPETENT LEAD BURNER AND ENGIneer wishes a situation; has had experience as foreman of copper leaching plant. Best of references. Address LEAD BURNER ARIZONA, ENGINEERING AND MINING JOURNAL. No. 16,597, June 16.

POSITION WANTED BY A PRACTICAL Copper Smeitor of several years' experience, well posted in the treatment of ores, refining, assaying and erection of smelting plant. Can introduce Napier's improved system of copper smelting. Address INGOT, ENGINEERING AND MINING JOURNAL. No. 16,513, June 23.

CHEMIST OF NINE YEARS' EXPERIENCE in metallurgical works is open to engagement. Best of references.
No. 16,482, tf. H. N. YATES, Lockport, N. Y.

CHEMIST OF NINE YEARS' EXPERIENCE in metallurgical works is open to engagement. Best of references.
No. 16,500, June 23. H. N. YATES, Lockport, N. Y.

A GRADUATE OF COOPER INSTITUTE, with four years' experience in a mechanical drafting room, wishes position as assistant superintendent or draftsman. Address B. F. W., ENGINEERING AND MINING JOURNAL. No. 16,593, June 23.

A GENERAL MACHINIST WANTS A SITUATION as Foreman. Address STEAM, ENGINEERING AND MINING JOURNAL. No. 16,497, June 30.

A MINING ENGINEER WILL SHORTLY BE open to re-engagement as Manager or Superintendent of Mines and Mills. Has wide experience in gold, silver and copper. Highest references from present and past employers. Address TRANSIT, ENGINEERING AND MINING JOURNAL. No. 16,496, June 23.

AN ALL-ROUND CIVIL ENGINEER (thoroughly American) familiar with Spanish language and customs, capable of taking full charge, willing to be an assistant. If with general contracting firm prefer an interest to salary; at present second chief engineer; employers as reference. Experienced in handling, reconnaissance, preliminary, location, construction and men, both as engineer and superintendent. Parties needing the same (especially those interested in South American enterprises) address CHARACTER, ENGINEERING AND MINING JOURNAL. No. 16,527, Aug. 4

MINING ENGINEER — YOUNG MAN, good assayer, surveyor and draughtsman, experience in mining and milling of gold ores, desires suitable position. Address W. G. E., ENGINEERING AND MINING JOURNAL. No. 16,524, June 23.

POSITION WANTED AS ASSISTANT TO mine manager or mining engineer, by a recent graduate of the Columbia College School of Mines. Address METAL MINING, ENGINEERING AND MINING JOURNAL. No. 16,560 tf.

Contracts Open.

PIPING, CASTINGS, VALVES, ETC.—Proposals are wanted until June 21 for furnishing a quantity of water pipe, special castings, gate valves, fire hydrants, etc. Address E. M. BIGELOW, Director of Department of Public Works, Pittsburg, Pa.

WATER-WORKS.—Sealed proposals will be received by the village council for a complete system of water-works for the village of Lamberton, Minn., consisting of water-tower, tank, stand pipe, water mains, hydrants, etc.; also windmill. Bids to be opened June 20, 1894. Plans and specifications can be seen at the office of the village recorder, Lamberton, Minn. G. B. TRETBAR, Village Recorder.

TREASURY DEPARTMENT, OFFICE SUpervising Architect, Washington, D. C., June 9th, 1894. —Sealed proposals will be received at this office until 2 o'clock P. M. on the 23d day of June, 1894, and opened immediately thereafter, for all the labor and materials required to furnish and erect complete one passenger elevator in the United States Court House and Post Office building at Birmingham, Ala., in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Custodian at Birmingham, Ala. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any or all bids, and to waive any defect or informality in any bid, should it be deemed in the interest of the Government to do so. All bids received after the time stated will be returned to the bidders. Proposals must be inclosed in envelopes, sealed and marked "Proposals for One Passenger Elevator in the United States Court House and Post Office Building at Birmingham, Ala.," and addressed to JEREMIAH O'ROURKE, Supervising Architect.

PIPING. CASTINGS, ETC.—Proposals are wanted until June 21st for furnishing a quantity of water pipe, special castings, gate valves, fire hydrants, etc. Address E. M. BIGELOW, Director of Department of Public Works, Pittsburg, Pa.

PIPING.—Victoria, B. C.—Sealed tenders will be received up to July 3d for furnishing approximately 310 tons (of 2,240 lbs.) of cast iron coated plain water pipes and 3¼ tons of special castings for the water-works, in accordance with specifications to be seen at the office of the water commissioner, where also forms of tenders may be obtained. WELLINGTON J. DOWLER, C. M. C.

CYLINDER AND MACHINE OIL.—Sealed proposals will be received until June 16th, 1894, for supplying cylinder and machine oils during the fiscal year ending June 30th, 1895, to certain United States buildings. Particulars will be furnished upon application to undersigned. Proposals should be addressed to the Secretary of the Treasury and indorsed "Proposals for Oil for United States Buildings." S. WIKE, Acting Secretary, Washington, D. C.

TREASURY DEPARTMENT, OFFICE SUPERvising Architect, Washington, D. C., June 2d, 1894.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 29th day of June, 1894, and opened immediately thereafter, for all the labor and materials required for the interior finish, plumbing, tower clock, etc., for the United States Post Office, Custom House, etc., building at Jacksonville, Fla., in accordance with drawings and specification, copies of which may be had at this office, or the office of the Superintendent at Jacksonville, Fla. Each bid must be accompanied by a certified check for a sum not less than 2 per cent. of the amount of the proposal. The right is reserved to reject any and all bids and to waive any defect or informality in any bid, if it be deemed in the interest of the government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be inclosed in sealed envelopes, and marked "Proposal for the Interior Finish, Plumbing, Tower Clock, Etc. for the United States Post Office, Custom House, Etc., building at Jacksonville, Fla.," and addressed to JEREMIAH O'ROURKE, Supervising Architect.

TREASURY DEPARTMENT, OFFICE SUPERvising Architect, Washington, D. C., June 1st, 1894.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 30th day of June, 1894, and opened immediately thereafter, for all the labor and materials and fixing in place complete the low pressure, return circulation, steam heating and ventilating apparatus required for the United States Court House and Post Office Building at Tallahassee, Fla., in accordance with the drawings and specification, copies of which may be had at this office, or the office of the Superintendent at Tallahassee, Fla. Each bid must be accompanied by a certified check for a sum not less than 2 per cent. of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or informality in any bid, if it be deemed in the interest of the Government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be inclosed in envelopes, sealed and marked "Proposal for Heating and Ventilating Apparatus, Etc., for the United States Court House and Post Office Building at Tallahassee, Fla.," and addressed to JEREMIAH O'ROURKE, Supervising Architect.

PIPING.—Pittsburg, Pa.—Proposals are wanted until June 21st for furnishing a quantity of water pipe, special castings, gate valves, fire hydrants, etc. Address E. M. BIGELOW, Director of Department of Public Works.

TUNNEL.—Evansville, Ind.—Sealed proposals will be received until June 20th, for excavation and removing earth, shale and loose rock over roof of Patton tunnel, near Taswell, on the line of the Louisville, Evansville & St. Louis Consolidated R. R., said material to be loaded on cars by contractors for the purpose of filling trestles within a few miles of the tunnel; the railroad company will unload the material. Excavation easy of access by tramways with short haul to sidings. Will also receive bids for lining 500 ft. of tunnel, stone to be used in side walls and hard brick in arch. Bids to be made per yard for all work. Proposals for lining tunnel to be made separately from excavation. Contractors may bid on either the excavation or tunnel work, or both. Profiles and specifications can be seen in the office of T. A. ALLEN, Chief Engineer, or will be furnished upon application.

WATER-WORKS.—Key West, Fla.—The Board of City Commissioners will receive bids for the space of 30 days for the furnishing of plans and specifications, and for the furnishing of material necessary and for the construction of a complete system af water-works for the city of Key West, in accordance with set of plans and specifications which may be adopted by the board, and will pay for the accepted set of plans and specifications a sum not to exceed $2,000; all other plans and specifications which may be furnished and which are not accepted will not be paid for. And the city of Key West reserves the right to pay for plans and specification and all material and labor required in the construction of the work in whole or in part in 6 per cent. semi annual interest bearing water-works bonds of the city of Key West at not less than par value.

Continued on page 19.

CHLORINE LIQUID
For Extraction of Gold.
FOR SALE BY
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The Most Successful Process for the Extraction of Gold.
IMPROVED BARREL CHLORINATION.

The undersigned has completed drawings and plans of the latest improvements in Barrel Chlorination, and is open to engagement for the testing of ores, the erection and operation of plants of any capacity. The most successful works in this country were managed by the undersigned.
Correspondence solicited.
JOHN E. ROTHWELL,
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STEEL RAILS,

NEW OR SECOND-HAND.

We can furnish any weight of New Rails. We also have for immediate delivery 400 tons of Second-Hand 60 lb. Steel T Rails, 100 tons 35 lb. Girder and 300 tons 45 lb flat steel; all well fit to relay, and cheap.

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Smelting Plant at Trinidad, Colo.,

all equipped, ready to start up. Situated just outside city limits Trinidad, on a 29½-acre tract of land adjoining a river. Side tracks from two competing railway lines. Description of Smelter Buildings and their contents, also photos of works, may be found at the office of ENGINEERING AND MINING JOURNAL.

For terms apply to **MILWAUKEE AND TRINIDAD SMELTING AND REFINING COMPANY, Milwaukee, Wis.**

FOR SALE OR TO LEASE

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A Manufacturing Water Power Plant,

stone buildings, 1,300 horse-power, fully equipped with turbines; suitable for a wood pulp mill, electrolytic refining works, or metal rolling mill; advantageously situated. Address MANUFACTURING, ENGINEERING AND MINING JOURNAL. No. 16,587, tf

FOR SALE.

A new Bilharz Concentrator, lately exhibited in the section of Chicago Iron Works, Mining Building, World's Fair. Original cost, $575. Will be sold very cheap. Is now in Butte, Mont. Address

H. M. MARTIN, 901 Columbus Bldg., Chicago.
No. 16,591, July 7.

Received Too Late for Classification.

A YOUNG FRENCHMAN, 27, E M., GRADuated in this country and in Europe; best references; some commercial experience; would like to meet some New York manufacturers with a view of becoming their agent for France, Belgium, Spain, etc., on a fixed salary and commission. Would give bonds. Address FRENCHMAN, ENGINEERING AND MINING JOURNAL. NO .16,598, June 23.

Contracts Open

Continued from page 18.

WATER-WORKS.—Farmington, Ill.—Sealed proposals will be received until June 25, for furnishing all material required in constructing a complete system of water-works. Following are the approximate amounts of material, etc.: 4,000 lin. ft. of 8-in. cast iron pipe, 43 lbs. per foot; 1,000 lin. ft of 6-in. cast iron pipe, 33 lbs. per foot; 6,000 lin. ft. of 4-in. cast iron pipe, 22 lbs. per foot; 10,000 lbs. special castings; 25 double discharge fire hydrants; three 8-in. gate valves; four 6-in. gate valves; ten 4-in. gate valves; 16 valve boxes; one duplex fire pump; one vertical acting pump; one steel standpipe, 10 ft. in diameter by 100 ft. high, erected on foundation furnished by city. Specifications for the above material, stand pipe, machinery, etc., may be obtained on application to the city clerk of this city or to Chas. F. Scurtevant, consulting engineer, 800 North Second street, St. Louis, Mo. A certified check of $200 on some national bank, made payable to the treasurer of said city, must accompany each bid. W. H. MILLER, Mayor.

NOTICE OF ASSESSMENT.

Bulwer Consolidated Mining Company.—117 Liberty St., New York.

Notice is hereby given that at a meeting of the Board of Directors held on Thursday, the twenty-fourth (24th day of May, 1894, an assessment, No. 9, of Ten Cents (10c.) per share, was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Farmers' Loan and Trust Company, No 20 and 22 William St., New York.

Any stock upon which this assessment shall remain unpaid on Friday, the twenty-ninth (29th) day of June 1894, will become delinquent and be advertised for sale at public auction; and unless payment is made before will be sold on Friday, the twenty-seventh (27th) day of July, 1894, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Directors.

L. OSBORN,
Secretary.

Main Office, Room No. 33 Nevada Block, No. 309 Montgomery Street, San Francisco, California.

FINANCIAL.

Golden Reef Mining and Milling Co.

Capital Stock, 100,000 Shares.
Par Value, $10.
Selling Price, $2.50 per share
Gold and Copper Mines at Norris, Madison County, Montana.

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The Golden Reef Mining and Milling Company, of Chicago, Illinois, offer to investors a limited number of shares of their Treasury Stock. This stock is guaranteed and is absolutely safe. The company's mines have been opened up. Many thousand tons of gold and copper ore of paying quality. All that is required to put the property in a dividend-paying condition is a milling plant. The mill is already built and ready for shipment.

Make all checks, drafts, etc., payable to THOMAS F. THORNE, of the Commercial National Bank, Chicago, Trustee. For prospectus and full information address E. M. TREAKLE, Sec'y, Room 1505, No. 79 Dearborn St., Chicago.

MISCELLANEOUS WANTS.

WANTED—PARTNER OR PARTNERS TO organize a stock company for manufacturing a patented automatic coal, clay and freight conveyor. In demand; $3,000 stock already insured for $1,500, or for the sale of the same. Illustrated catalogue on application.

Address L. BOUDREAU, No. 170 E. Spruce Street, Manchester, N. H.

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to buy a cheap second-hand ROCK BREAKER.

Address
MYLES & CO.,
No. 16,506. June 1 New Orleans, La.

WANTED—CARBONATE OF LEAD.

Advertisers are in want of large amounts of Carbonate of Lead. Estimates invited for number of tons of Carbonate of Lead Concentrate that can be furnished per annum, and lowest cash price for same delivered at St. Louis and Kansas City. Parties furnishing must guarantee quantities.

JOHN L. COVINGTON,
No. 113 Broadway, New York, N. Y.

WANTED—ONE SECOND-HAND SADDLE tank locomotive in good condition, cylinders about 7 by 12, gauge 3 feet. State where can be seen, how long used, name of maker, full description of locomotive with cut if possible. Name price delivered at Dunellon, Fla., S. S. O. & G. R. R.

Address
MARION PHOSPHATE CO., Savannah, Ga.
No. 16,592, June 16.

WANTED,

TO PURCHASE, A SECOND-HAND

GRIFFIN MILL,

Latest pattern, in good condition. Address with full particulars and price, MILL, ENGINEERING AND MINING JOURNAL.

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